STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

Phone: 860-594-3128

November 17, 2016

Subject: FAP No. 0015(134)
Project No.158-211: Route 15 Safety Improvements, Resurfacing, Enhancements and Bridges Improvements in the Towns of Westport & Fairfield.
Project No.158-207: Rehabilitation of Bridge No. 00728 Merritt Parkway over the Saugtuck River in the Town of Westport.

NOTICE TO CONTRACTORS:

This is to notify all concerned and especially the prospective bidders that the bid opening for the subject project has been previously postponed One (1) additional week from November 16, 2016 to November 23, 2016 at 2:00 P.M. in the Conference Room of the Department of Transportation Administration Building, 2800 Berlin Turnpike, Newington, Connecticut.

Addendum No. 2 is attached

Please send all future questions to http://dot-contractsqanda.ct.gov/Default.aspx

Gregory D. Straka
Gregory D. Straka
Contracts Manager
Division of Contracts Administration

NOVEMBER 14, 2016
MERRITT PARKWAY (ROUTE 15) SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS, AND BRIDGE IMPROVEMENTS
FEDERAL AID PROJECT NOS.: 0015(134) & N/A
STATE PROJECT NOS.: 158-211 & 158-207
TOWNS OF WESTPORT & FAIRFIELD

ADDENDUM NO. 2

This Addendum addresses the following questions and answers contained on the "CT DOT QUESTIONS AND ANSWERS WEBSITE FOR ADVERTISED CONSTRUCTION PROJECTS":

Question and Answer Nos. 10, 35, 36, 39

SPECIAL PROVISIONS

NEW SPECIAL PROVISIONS

The following Special Provisions are hereby added to the Contract:

- NTC – WATER MAIN AT NEWTOWN TURNPIKE
- ITEM NO. 1131007A – PORTABLE WORK ZONE MANAGEMENT SYSTEM DEPLOYMENT
- ITEM NO. 1131008A – PORTABLE WORK ZONE MANAGEMENT SYSTEM OPERATIONS
- ITEM NO. 1131009A – PORTABLE WORK ZONE MANAGEMENT SYSTEM QUEUE TRAILER/SENSOR (PQT)
- ITEM NO. 1131012A – PORTABLE WORK ZONE MANAGEMENT SYSTEM CHANGEABLE MESSAGW SIGN/QUEUE SENOR TRAILER (PCMQ)
- ITEM NO. 1131013A – PORTABLE WORK ZONE MANAGEMENT SYSTEM TRAILER RELOCATION
- ITEM NO. 1131014A – PORTABLE WORK ZONE MANAGEMENT SYSTEM MOBILE VIDEO CAMERA/QUEUE SENSOR TRAILOR (PVQS)

REVISED SPECIAL PROVISIONS

The following Special Provisions are hereby deleted in their entirety and replaced with the attached like-named Special Provisions:

- CONTRACT TIME AND LIQUIDATED DAMAGES
- NTC – HAZARDOUS MATERIALS INVESTIGATIONS
- SECTION 1.05 – CONTROL OF THE WORK
- SECTION 1.06 – CONTROL OF MATERIALS
- SECTION 1.08 – PROSECUTION AND PROGRESS
- ITEM NO. 0020903A – LEAD COMPLIANCE FOR MISCELLANEOUS EXTERIOR TASKS
- ITEM NO. 0601201A – CLASS "F" CONCRETE

CONTRACT ITEMS
NEW CONTRACT ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
1131007A	PORTABLE WORK ZONE MANAGEMENT SYSTEM DEPLOYMENT	L.S.	L.S.
1131008A	PORTABLE WORK ZONE MANAGEMENT SYSTEM OPERATIONS	MO.	36
1131009A	PORTABLE WORK ZONE MANAGEMENT SYSTEM QUEUE TRAILER/SENSOR (PQT)	MO.	324
1131012A	PORTABLE WORK ZONE MANAGEMENT SYSTEM CHANGEABLE MESSAGE SIGN/ QUEUE SENSOR TRAILER (PCMQ)	EA.	144
1131013A	PORTABLE WORK ZONE MANAGEMENT SYSTEM TRAILER RELOCATION	EA.	6
1131014A	PORTABLE WORK ZONE MANAGEMENT SYSTEM MOBILE VIDEO CAMERA/ QUEUE SENSOR TRAILER (PVQS)	EA.	180

PLANS
REVISED PLANS
The following Plan Sheets are hereby deleted and replaced with the like-numbered Plan Sheets appended with A2:

01.02.01.A2, 01.03.06.A2, 01.03.19.A2

PERMIT
The following Permit for Project No. 158-207 is hereby added to the Contract:

- FLOOD MANAGEMENT GENERAL CERTIFICATION

REPORT
The following Report is hereby added to the Contract:

- HAZMAT INSPECTION - NINE (9) BRIDGES, ROUTE 15, WESTPORT/FAIRFIELD (REVISED) dated JUNE 1, 2016

The Detailed Estimate Sheets do not reflect these changes.

The Bid Proposal Form has been revised to reflect these changes.

There will be no change in the number of calendar days due to this Addendum.

The foregoing is hereby made a part of the contract.

CONTRACT TIME AND LIQUIDATED DAMAGES

In order to minimize the hazard, cost and inconvenience to the traveling public and pollution of the environment, it is necessary to limit the time of construction work which interferes with traffic as specified in Article 1.08.04 of the Special Provisions.

There will be two assessments for liquidated damages and they will be addressed in the following manner:

1. For this contract, an assessment per day for liquidated damages, at a rate of Nine Thousand Two Hundred Dollars ($9,200.00) per day shall be applied to each calendar day the work runs in excess of the Six Hundred Thirty (630) allowed calendar days for the contract.

2. For this contract, an assessment per hour for liquidated damages shall be applied to each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours given in Article 1.08.04 of the Special Provisions. The liquidated damages shall be as shown in the following tables entitled “Liquidated Damages Per Hour” for each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours.

3. For this Contract, an assessment per day for liquidated damages, at a rate of Two Thousand One Hundred Dollars ($2,100) per day shall be applied to each day the work runs in excess of the eight (8) consecutive week local road detours, per site, defined within the Contract.

For the purpose of administering this contract, normal traffic operations are considered interfered with when:

1. Any portion of the travel lanes or shoulders is occupied by any personnel, equipment, materials, or supplies including signs.

2. The transition between the planes of pavement surfaces is at a rate of one inch in less than fifteen feet longitudinally.

LIQUIDATED DAMAGES PER HOUR

Project Nos. 158-211 & 158-207

Route 15 N.B. From M.P. 20.24 (Southern project limit) to M.P. 20.73 2 Lane Section		
If Working Periods Extends Into	A.M. 1 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$ 500	$ 15,000
2nd Hour of Restrictive Period	$ 500	$ 50,000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 500	$ 80,000

Route 15 N.B. From M.P. 20.73 to M.P. 25.22 (Northern project limit) 2 Lane Section		
If Working Periods Extends Into	A.M. 1 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$ 500	$ 10,000
2nd Hour of Restrictive Period	$ 1,000	$ 50,000
3rd Hour or any Subsequent Hour of Restrictive Period	$ 5,000	$ 80,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “2” or “E”.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

LIQUIDATED DAMAGES PER HOUR

Project Nos. 158-211 & 158-207

Route 15 S.B. From M.P. 20.24 (Southern project limit) to M.P. 20.73 2 Lane Section		
If Working Periods Extends Into	A.M. 1 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$ 35,000	$ 500
2nd Hour of Restrictive Period	$ 70,000	$ 500
3rd Hour or any Subsequent Hour of Restrictive Period	$ 80,000	$ 1,000

Route 15 S.B. From M.P. 20.73 to M.P. 25.22 (Northern project limit) 2 Lane Section		
If Working Periods Extends Into	A.M. 1 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$ 10,000	$ 500
2nd Hour of Restrictive Period	$ 30,000	$ 500
3rd Hour or any Subsequent Hour of Restrictive Period	$ 45,000	$ 6,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “2” or “E”.

For each hour shown on the Limitation of Operations charts designated with an “E”, liquidated damages of $500 shall apply for each hour, or part thereof, if all available shoulder widths are not available to traffic.

Liquidated damages in the amount of $500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

NOTICE TO CONTRACTOR - WATER MAIN AT NEWTOWN TURNPIKE

The existing water main crossing Bridge No. 00726 carrying Newtown Turnpike over the Merritt Parkway will be relocated by others. This work re-routes the water main around the bridge. Work is scheduled to begin in the Spring of 2017 and is expected to be completed by the Fall of 2017. After completion, the existing water main crossing the structure will no longer be required. This work is being performed by Aquarion Water Company of Connecticut. The Contractor shall coordinate work with Aquarion Water Company's Utility Systems Coordinator.

Carlos J. Vizarrondo
Utility Systems Coordinator
Aquarion Water Company of CT
Tel: 203-337-5960

NOTICE TO CONTRACTOR - HAZARDOUS MATERIALS INVESTIGATIONS

Limited hazardous materials site investigations have been conducted at nine (9) bridge sites, Bridge Nos. 00726 (Site 1), 05763 (Site 2), 00728, (Site 3), 00729 (Site 4), 00730 (Site 5), 00731 (Site 6), 00733 (Site 8), 00734 (Site 9), 00735 (Site 10) & 00736 (Site 11), on Route 15 in Westport and Fairfield, Connecticut. The scope of inspections were limited to the representative components projected for impact.

Detectable levels of lead in paint were confirmed present at Site No. 2 (concrete), Site No. 3 (structural steel), Site No. 4 (metal railing, steel beams, concrete), Site No. 5 (concrete), Site No. 8 (concrete), Site No. 9 (concrete) & Site No. 10 (metal railing). Lead paint is presently presumed on the structural steel/metal bridge components at Site No. 6 (not safely accessible). There were no painted surfaces at Site No. 1 & Site No. 11, therefore there is no lead paint.

Projected paint waste debris was characterized as EPA/CTDEEP hazardous waste at Site No. 3 (structural steel), Site No. 4 (structural steel) & Site No. 10 (railings). Projected paint waste debris was characterized as non-hazardous, non-RCRA waste at Site No.2 (concrete), Site No. 4 (railings/concrete), Site No. 5 (concrete), Site No. 8 (concrete) & Site No. 9 (concrete). Any paint waste debris generated from the structural steel/metal bridge components at Site No. 6 is presently presumed as EPA RCRA/CTDEEP hazardous waste pending actual characterization testing when accessible.

All steel and metal generated from work tasks (painted or not) shall be segregated and recycled as scrap metal at a scrap metal recycling facility. The recycling of scrap metal (regardless of lead paint concentration) is exempt from USEPA RCRA and CTDEEP Hazardous Waste Regulation.

Grey hard caulking at cracks of abutment walls and precast stone trim & vertical black tar expansion joints on bridge side walls (top side of the bridge) were found to contain asbestos (Site No. 1). Grey pliable caulk (Site No. 2), grey thin brittle caulk (Site No. 4), grey thick pliable caulk (Site No. 4), dark grey hard caulk (Site No. 10) & tan hard caulk (Site No. 10) were found to contain no asbestos.

CTDEEP Special Waste (tire) was identified at base of the abutment of Site No. 5.

Bird/pigeon guano accumulations were identified on the piers of Site No. 3.

The Contractor is hereby notified that these hazardous materials requiring special management or disposal procedures will be encountered during various construction activities conducted within the project limits. The Contractor will be required to implement appropriate health and safety measures for all construction activities impacting these materials. These measures shall include, but are not limited to, air monitoring, engineering controls, personal protective equipment and decontamination, equipment decontamination and personnel training. WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The Department, as Generator, will provide an authorized representative to sign all manifests and waste profile documentation required by disposal facilities for disposal of hazardous materials.

The Sections which shall be reviewed by the Contractor include, but are not limited to, the following:

- Item No. 0020903A – Lead Compliance for Miscellaneous Exterior Tasks
- Item No. 0020904A – Lead Compliance for Abrasive Blast Cleaning
- Item No. 0603222A – Disposal of Lead Debris from Abrasive Blast Cleaning
- Item No. 0020801A – Asbestos Abatement
- Item No. 0020765A – Guano Abatement

The Contractor is alerted to the fact that a Department environmental consultant may be on site for abatement and related activities, to collect environmental samples (if necessary), and to observe site conditions for the State.

Information pertaining to the results of the limited hazardous materials investigation discussed can be found in the document listed below. This document shall be available for review at the Office of Contracts, 2800 Berlin Turnpike, Newington, Connecticut.

- HazMat Inspection Letter, Nine (9) Bridges, Route 15 **(Revised)**, Westport/Fairfield, CT, TRC Environmental Corporation, June 1, 2016.

- HazMat Inspection Letter, Bridge No 00728, Route 15 over Saugatuck River, Westport, CT, TRC Environmental Corporation, July 5, 2016.

SECTION 1.05 - CONTROL OF THE WORK

Article 1.05.02 - Plans, Working Drawings and Shop Drawings is supplemented as follows:

Subarticle 1.05.02 - (2) is supplemented by the following:

Traffic Signal Items:

When required by the contract documents or when ordered by the Engineer, The Contractor shall prepare and submit product data sheets**,** working drawings and/or shop drawings for all traffic signal items. The packaged set submitted in an electronic portable document format (.pdf) shall be in an individual file with appropriate bookmarks for each item. The electronic files for product data sheets shall be created on ANSI A (8 ½" x 11"; 216 mm x 279mm; letter) sheets. Working drawings and shop drawings shall be printed on ANSI B (11" x 17"; 279 mm x 432 mm; ledger/tabloid) sheets.

Please send the pdf documents via email to:

DOT.TrafficElectrical@ct.gov

Portable Work Zone Management System Items:

When required by the contract documents or when ordered by the Engineer, The Contractor shall prepare and submit product data sheets**,** working drawings and/or shop drawings for all Portable Work Zone Management System items. The packaged set submitted in an electronic portable document format (.pdf) shall be in an individual file with appropriate bookmarks for each item. The electronic files for product data sheets shall be created on ANSI A (8 ½" x 11"; 216 mm x 279mm; letter) sheets. Working drawings and shop drawings shall be printed on ANSI B (11" x 17"; 279 mm x 432 mm; ledger/tabloid) sheets.

Please send the pdf documents via email to:

DOT.ITSEngineering@ct.gov

SECTION 1.06 - CONTROL OF MATERIALS

Article 1.06.01 - Source of Supply and Quality:

Add the following:

Traffic Signal Items:

For the following traffic signal items the contractor shall submit a complete description of the item, working drawings, product data sheets and other descriptive literature which completely illustrates such items presented for formal approval. Such approval shall not change the requirements for a certified test report and materials certificate as may be called for. All documents shall be submitted at one time, unless otherwise approved by the engineer.

Loop Vehicle Detection
- Loop Detector
- Loop Sealant
- Loop Wire
- Loop Lead-in Wire

Portable Work Zone Management System Items:

For the following Portable Work Zone Management System items the Contractor shall submit a complete description of the item consisting of the latest manufacturer shop drawing(s) which completely illustrates the material presented for formal approval. The submitted shop drawing(s) shall clearly call-out all material and operational properties for the item specific to the project. Such approval shall not change the requirements for a certified test report and materials certificate as may be called for.

- Portable Work Zone Management System Queue Trailer/Sensor (PQT)
- Portable Work Zone Management System Changeable Message Sign/Queue Sensor Trailer (PCMQ)
- Portable Work Zone Management System Mobile Video Camera/Queue Sensor Trailer (PVQS)

Required product data sheets for all items listed above shall be submitted in one package at the same time. Please note: the list of items above is a “general” list of items. Certain items listed may or may not be present in a specific project. Please consult the Detailed Estimate sheet for project specific items.

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.03 - Prosecution of Work:

Add the following:

The Contractor shall notify the Traffic Signal Lab at Telephone (860) 258-0346 or (860) 258-0349 forty-five (45) days prior to starting work on computer controlled signalized intersections only. This notice will initiate work to be completed by others. The Contractor shall be responsible for any timely updates that need to be reported to this Unit for the successful coordination of work by others.

The Contractor shall notify the project engineer on construction projects, or the district permit agent on permit jobs, when all traffic signal work is completed. This will include all work at signalized intersections including loop replacements, adjusting existing traffic signals or any relocation work including handholes. The project engineer or district permit agent will notify the Division of Traffic Engineering to coordinate a field inspection of all work. Refer to Section 10.00 – General Clauses For Highway Illumination And Traffic Signal Projects, Article 10.00.10 and corresponding special provision.

Article 1.08.04 - Limitation of Operations - Add the following:

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be permitted to perform any work which will interfere with the described traffic operations on all project roadways as follows:

Route 15 (Merritt Parkway)

On the following State observed Legal Holidays:
New Year's Day
Good Friday, Easter*
Memorial Day
Independence Day
Labor Day
Thanksgiving Day**
Christmas Day

The following restrictions also apply:

On the day before and the day after any of the above Legal Holidays.

On the Friday, Saturday, and Sunday immediately preceding any of the above Holidays celebrated on a Monday.

On the Saturday, Sunday, and Monday immediately following any of the above Holidays celebrated on a Friday.

* From 6:00 a.m. the Thursday before the Holiday to 8:00 p.m. the Monday after the Holiday.

** From 6:00 a.m. the Wednesday before the Holiday to 8:00 p.m. the Monday after the Holiday.

During all other times
The Contractor shall maintain and protect traffic as shown on the accompanying "Limitation of Operations" charts, which dictate the minimum number of lanes that must remain open for each day of the week.

Subject to the review and approval of the Engineer, the Contractor will be allowed to halt Route 15 traffic for a period not to exceed 10 minutes to perform necessary work. The Contractor shall submit a plan for such activity and an explanation of the hardship requiring the traffic stoppage. The duration of the traffic stoppages shall be kept to an absolute minimum; and such stoppages shall only be allowed between 12:01 a.m. and 5:00 a.m. on all non-Holiday days.

The Contractor will be allowed to halt Route 15 traffic for a period of time not to exceed ten minutes for the purpose of blasting rock as approved by the Engineer during the following times:

Route 15 Northbound and Southbound

On Tuesday and Wednesday between the hours of 10:00 a.m. and 1:00 p.m.

Project No. 158-211
Limitation of Operations Chart
Minimum Number of Lanes to Remain Open

Route: 15 Northbound Location: Within Project Limits Number of Through Lanes: 2							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1
5 AM	1	1	1	1	1	1	1
6 AM	E	E	E	E	E	1	1
7 AM	E	E	E	E	E	1	1
8 AM	E	E	E	E	E	1	1
9 AM	2	2	2	2	2	2	1
10 AM	2	2	2	2	2	2	2
11 AM	2	2	2	2	2	2	2
Noon	2	2	2	2	2	2	2
1 PM	2	2	2	2	2	2	2
2 PM	2	2	2	2	2	2	2
3 PM	E	E	E	E	E	2	2
4 PM	E	E	E	E	E	2	2
5 PM	E	E	E	E	E	2	2
6 PM	2	2	2	2	2	2	2
7 PM	2	2	2	2	2	2	2
8 PM	1	1	1	2	2	1	1
9 PM	1	1	1	1	1	1	1
10 PM	1	1	1	1	1	1	1
11 PM	1	1	1	1	1	1	1

Route: 15 Southbound Location: Within Project Limits Number of Through Lanes: 2							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1
5 AM	1	1	1	1	1	1	1
6 AM	E	E	E	E	E	1	1
7 AM	E	E	E	E	E	1	1
8 AM	E	E	E	E	E	1	1
9 AM	2	2	2	2	2	2	2
10 AM	2	2	2	2	2	2	2
11 AM	2	2	2	2	2	2	2
Noon	2	2	2	2	2	2	2
1 PM	2	2	2	2	2	2	2
2 PM	2	2	2	2	2	2	2
3 PM	E	E	E	E	E	2	2
4 PM	E	E	E	E	E	2	2
5 PM	E	E	E	E	E	2	2
6 PM	2	2	2	2	2	2	2
7 PM	1	1	1	1	2	2	2
8 PM	1	1	1	1	1	1	2
9 PM	1	1	1	1	1	1	2
10 PM	1	1	1	1	1	1	2
11 PM	1	1	1	1	1	1	1

On Holidays and within Holiday Periods, all Hours shall be 'E.'

'E' = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period

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Stage Construction

The Contractor shall stage construct this project in accordance with the Typical Traffic Shift Plans and Stage Construction Plans contained in the special provision for Item no. 0971001A. The installation of the concrete curb and gutter section will be performed in accordance with the limitation of operations charts included herein.

The Contractor must maintain an acceleration lane for each on ramp with an acceleration lane length that meet or exceeds the Department's minimum requirements (300 feet parallel section plus a 350 feet taper section), or that meet or exceeds the length of the existing on ramp acceleration lane. Any changes shall be approved by the Engineer.

The Contractor will not be allowed to have more than 2 work zones on Route 15 in each direction at a time. Each work zone shall be 1.5 miles or less with a minimum of one mile of open roadway between the work zones.

Upon approval of the Engineer, during the allowable period, the Contractor will be allowed to implement lane closures using the Traffic Control Pattern Lane Closure With Shift (S-Pattern) plan included in the Contract plans.

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All Ramps and Turning Roadways

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

During the allowable periods, the Contractor may close any ramp where the available width is less than 28 feet wide for contract work and detour traffic. The Contractor shall submit a detour plan to the engineer at least two weeks prior to any ramp closure.

Bridge No. 00726 – Newtown Turnpike over Merritt Parkway

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

During the performance of the Major Bridge Work, the Contractor will be allowed to close Newtown Turnpike and detour traffic in accordance with the Detour Plan contained in the Contract plans. The duration of the detour shall not exceed eight (8) consecutive weeks and be limited to the period within:

Late June – late August of 2018 or 2019.

The Contractor shall notify the Engineer at least 14 days in advance of the start of the Newtown Turnpike closure.

The Contractor will be allowed to halt traffic for a period not to exceed 10 minutes to perform necessary work as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. on all non-Holiday days.

Bridge No. 00736 – Redding Road over Merritt Parkway

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

During the performance of the Major Bridge Work, the Contractor will be allowed to close Redding Road and detour traffic in accordance with the Detour Plan contained in the Contract plans. The duration of the detour shall not exceed eight (8) consecutive weeks and be limited to the period within:

Late June – late August of any Contract year.

The detour should not take place during the closure of Newtown Turnpike or during the alternating one-way traffic operation at Merwins Lane.

The Contractor shall notify the Engineer at least 14 days in advance of the start of the Redding Road closure.

The Contractor will be allowed to halt traffic for a period not to exceed 10 minutes to perform necessary work as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. on all non-Holiday days.

Bridge No. 00735 – Merwins Lane over Merritt Parkway

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

During the performance of the Major Bridge Work, the Contractor will be allowed to maintain an alternating one-way traffic operation controlled by temporary signalization in accordance with the stage construction plan contained in the contract plans. The duration shall not exceed eight (8) consecutive weeks.

The Contractor will be allowed to halt traffic for a period not to exceed 10 minutes to perform necessary work as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. on all non-Holiday days.

Bridge No. 00729 – Clinton Avenue over Merritt Parkway

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

During the performance of the Major Bridge Work, the Contractor will be allowed to maintain an alternating one-way traffic operation controlled by stop signs in accordance with the stage construction plan contained in the contract plans. The duration shall not exceed eight (8) consecutive weeks.

The Contractor will be allowed to halt traffic for a period not to exceed 10 minutes to perform necessary work as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. on all non-Holiday days.

Bridge No. 05763 – Route 33 (Wilton Road) under Merritt Parkway

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 10:00 a.m. and between 3:00 p.m. and 7:00 p.m.

Saturday and Sunday between 6:00 a.m. and 10:00 p.m.

During the performance of the Major Bridge Work, the Contractor will be allowed to maintain traffic operation in accordance with the Stage Construction Plans for Bridge No. 00573 and Bridge No. 00728 contained in the contract plans; or Typical Traffic Shift Plans contained in the special provision for Item No. 0971001A.

The Contractor will be allowed to halt traffic for a period not to exceed 10 minutes to perform necessary work, as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. on all non-Holiday days.

Bridge No. 00728 – Saugatuck River under Merritt Parkway (Project No. 158-207)

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations.

During the performance of the Major Bridge Work, the Contractor will be allowed to maintain traffic operation in accordance with the stage construction plans contained in the contract plans.

The Contractor shall coordinate the stage construction of this bridge with other bridges in the project during construction to ensure that the stages do not conflict. The shoulders on this bridge shall be reconstructed prior to implementing staging construction.

Bridge No. 00730 – Route 57 (Weston Road) under Merritt Parkway
Bridge No. 00733 – Bayberry Lane under Merritt Parkway
Bridge No. 00734 – Cross Highway under Merritt Parkway

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 10:00 a.m. and between 3:00 p.m. and 7:00 p.m.

The Contractor will be allowed to halt traffic for a period not to exceed 10 minutes to perform necessary work, as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. on all non-Holiday days.

All Other Roadways

The Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m.

Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

Additional Lane Closure Restrictions

It is anticipated that construction work including, but not limited to, other projects, permit operations, and work by others will be ongoing simultaneously with this project. The Contractor shall consult with the Engineer to determine if any coordination with this construction work will be required. Other work requiring coordination shall be determined by the Engineer and shall include any other work with construction methods that may affect this project and are in effect at the Bid Opening or are scheduled to be in effect during this Project's construction phase. The Contractor shall begin coordination during the pre-construction phase and continue throughout the Project's duration. Coordination will be required to maintain proper traffic flow at all times on all project roadways, in a manner consistent with these specifications and acceptable to the Engineer.

The Contractor will not be allowed to perform any work that will interfere with traffic operations on a roadway when traffic operations are being restricted on that same roadway, unless there is at least a one mile clear area length where the entire roadway is open to traffic or the closures have been coordinated and are acceptable to the Engineer. The one mile clear area length shall be measured from the end of the first work area to the beginning of the signing pattern for the next work area.

ITEM #0020903A - LEAD COMPLIANCE FOR MISCELLANEOUS EXTERIOR TASKS

Description:

Work under this item shall include the special handling measures and work practices required for miscellaneous exterior tasks that impact materials containing or covered by lead paint. Lead paint includes paint found to contain **any** detectable amount of lead by Atomic Absorption Spectrophotometry (AAS) or X-Ray Fluorescence (XRF). Examples of typical miscellaneous exterior tasks includes; work impacting signs, guiderails, minor bridge rehabilitation, catenary structures, canopy structures, spot/localized paint removal, etc.

All activities shall be performed in accordance with the OSHA Lead in Construction Regulations (29 CFR 1926.62), the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260 through 274), and the CTDEEP Hazardous Waste Regulations (RCSA 22a-209-1 and 22a-449(c)).

All activities shall be performed by individuals with appropriate levels of OSHA lead awareness and hazard communication training and shall supervised by the Contractors Competent Person on the job site at all times. The Contractors Competent Person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Deviations from these Specifications require the written approval of the Engineer.

Materials:

All materials shall be delivered to the job site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description, with MSDS sheets as applicable.

No damaged or deteriorating materials shall be used. If material becomes contaminated with lead, the material shall be decontaminated or disposed of as lead-containing waste material. The cost to decontaminate and dispose of this material shall be at the expense of the Contractor.

The following material requirements are to be met if to be used during the work:

Fire retardant polyethylene sheet shall be in roll size to minimize the frequency of joints, with factory label indicating minimum six (6) mil thickness.

Polyethylene disposable bags shall be minimum six (6) mils thick.

Tape (or equivalent) product capable of sealing joints in adjacent polyethylene sheets and for the attachment of polyethylene sheets to finished or unfinished surfaces must be capable of adhering under both dry and wet conditions.

Cleaning Agents and detergent shall be lead specific, such as TriSodium Phosphate (TSP).

Chemical strippers and chemical neutralizers shall be compatible with the substrate as well as with each other. Such chemical stripper shall contain less than 50% Volatile Organic Compounds (VOCs) by weight in accordance with RCSA 22a-174-40 Table 40-1.

Labels and warning signs shall conform to 29 CFR 1926.62, 40 CFR 260 through 274 and 49 CFR 172 as appropriate.

Air filtration devices and vacuum units shall be equipped with High-Efficiency Particulate Air (HEPA) filters.

Construction Methods:

(1) Pre-Abatement Submittals and Notices

A. Prior to the start of **any** work on a contiguous per site basis that will generate hazardous lead waste above conditionally exempt small quantities (greater than 100 kg/month or greater than 1000 kg at any time), the Contractor shall obtain from the Engineer on a contiguous per site basis a temporary EPA Hazardous Waste Generators ID number, unless otherwise directed by the Engineer. Temporary EPA ID numbers are good for six months from the date they are issued and can be extended once, for a maximum of six months and can't be used for longer than one year. The Contractor will be responsible for notifying the Engineer when an extension is needed.

B. Fifteen (15) working days prior to beginning work that impacts lead paint, the Contractor shall submit the following to the Engineer:

1. Work plan for work impacting lead paint including engineering controls, methods of containment of debris and work practices to be employed, as needed, to minimize employee exposure and prevent the spread of lead contamination outside the Regulated Area.

2. Copies of all employee certificates, dated within the previous twelve (12) months, relating to OSHA lead awareness and hazard communication training and training in the use of lead-safe work practices. SSPC training programs may be accepted as meeting these requirements if it can be demonstrated that such training addressed all required topics.

   This information shall be updated and resubmitted annually, or as information changes, for the duration of the activities impacting lead to verify continued compliance.

3. Name and qualifications of Contractor's OSHA Competent Person under 29 CFR 1926.62.

4. Documentation from the Contractor, typed on company letterhead and signed by the Contractor, certifying that all employees listed therein have received the following:

   a. medical monitoring within the previous twelve (12) months, as required in 29 CFR 1926.62;
   b. biological monitoring within the previous six (6) months, as required in 29 CFR 1926.62;
   c. respirator fit testing within the previous twelve (12) months, as required in 29 CFR 1910.134 (for those who don a tight-fitting face piece respirator)

   This information shall be updated and resubmitted annually, or as information changes, for the duration of the activities impacting lead to verify continued compliance.

5. Names of the proposed non-hazardous construction and demolition (C&D) lead debris bulky waste disposal facility (CTDEEP-permitted Solid Waste landfill).

6. Names of the proposed scrap metal recycling facilities. The Contractor shall submit to the Engineer all documentation necessary to demonstrate the selected facility is able to accept lead-painted scrap metal.

7. Names of the proposed hazardous waste disposal facility (selected from the Department approved list provided herein), and copies of each facilities acceptance criteria and sampling frequency requirements.

8. Copies of the proposed hazardous waste transporters current USDOT Certificate of Registration for Hazardous Materials Transport, and the proposed transporters current Hazardous Waste Transporter Permits for the State of Connecticut and the waste destination State.

9. Negative exposure assessments conducted within the previous 12 months documenting that employee exposure to lead for each task is below the OSHA Action Level of 30 $\mu g/m^3$. If a negative exposure assessment has not been conducted, the Contractor shall submit its air monitoring program for the work tasks as part of the Work Plan. Until a negative exposure assessment is developed for each task impacting lead paint, the Contractor shall ensure that all workers and authorized persons entering the Regulated Area wear protective clothing and respirators in accordance with OSHA 29 CFR 1926.62.

No activity shall commence until all required submittals have been received and found acceptable to the Engineer. Those employees added to the Contractor's original list will be

allowed to perform work only upon submittal of acceptable documentation to, and review by, the Engineer.

Contractor shall provide the Engineer with a minimum of 48 hours notice in advance of scheduling, changing or canceling work activities.

(2) Lead Abatement Provisions

A. General Requirements:

All employees of the Contractor who perform work impacting lead paint shall be properly trained to perform such duties. In addition, the Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project.

Contractor shall provide all labor, materials, tools, equipment, services, testing, and incidentals which are necessary or required to perform the work in accordance with applicable governmental regulations, industry standards and codes, and these Specifications.

Prior to beginning work, the Engineer and Contractor shall perform a visual survey of each work area and review conditions.

As necessary, the Contractor shall:

> Shut down and lock out electrical power, including all receptacles and light fixtures, where feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the site.

If adequate electrical supply is not available at the site, the Contractor shall supply temporary power. Such temporary power shall be sufficient to provide adequate lighting and power the Contractor's equipment. The Contractor is responsible for proper connection and installation of electrical wiring and shall ensure safe installation of electrical equipment in compliance with applicable electrical codes and OSHA requirements.

If water is not available at the site for the Contractor's use, the Contractor shall supply sufficient water for each shift to operate the wash facility/decontamination shower units in addition to the water needed at the work area.

The Engineer may provide a Project Monitor to monitor compliance of the Contractor and protect the interests of the Department. In such cases, no activity impacting lead paint shall be performed until the Project Monitor is on-site. Where no Project Monitor will be provided, Contractor shall proceed at the direction of the Engineer. Environmental sampling, including ambient air sampling, TCLP waste stream sampling, and dust wipe sampling, will be conducted by the State as it deems necessary throughout the project. Air monitoring to comply with the Contractor's obligations under OSHA remains solely responsibility of the Contractor.

If at any time, procedures for engineering, work practice, administrative controls or other topics are anticipated to deviate from those documented in the submitted and accepted Lead Work Plan, the Contractor shall submit a modification of its existing plan for review and acceptance by the Engineer prior to implementing the change.

If air samples collected outside of the Regulated Area during activities impacting lead paint indicate airborne lead concentrations greater than original background levels or 30 ug/m^3, whichever is larger, or if at any time visible emissions of lead paint extend out from the Regulated Area, an examination of the Regulated Area shall be conducted and the cause of such emissions corrected. Cleanup of surfaces outside the Regulated Area using HEPA vacuum equipment or wet cleaning techniques shall be done prior to resuming work.

Work outside the initial designated area(s) will not be paid for by the Engineer. The Contractor will be responsible for all costs incurred from these activities including repair of any damage.

B. Regulated Area

The Contractor shall establish a Regulated Area through the use of appropriate barrier tape or other means to control unauthorized access into the area where activities impacting lead paint are occurring. Warning signs meeting the requirements of 29 CFR 1926.62 shall be posted at all approaches to Regulated Areas. These signs shall read:

DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK, OR SMOKE IN THIS AREA

The Contractor shall implement appropriate engineering controls such as poly drop cloths, local exhaust ventilation, wet dust suppression methods, etc. as necessary, and as approved by the Engineer, to prevent the spread of lead contamination beyond the Regulated Area in accordance with the Contractor's approved work plan. Should the previously submitted work plan prove to be insufficient to contain the contamination, the Contractor shall modify its plan and submit it for review by the Engineer.

C. Wash Facilities:

The Contractor shall provide handwash facilities in compliance with 29 CFR 1926.51(f) and 29 CFR 1926.62 <u>regardless of airborne lead exposure</u>.

If employee exposure to airborne lead exceeds the OSHA Permissible Exposure Limit of 50 micrograms per cubic meter (µg/m^3), shower rooms must be provided. The Shower Room shall be of sufficient capacity to accommodate the number of workers. One shower stall shall be provided for each eight (8) workers. Showers shall be equipped with hot and cold or warm

running water. Shower water shall be collected and filtered using best available technology and disposed of in accordance with all Federal, State and local laws, regulations and ordinances.

D. Personal Protection:

The Contractor shall initially determine if any employee performing construction tasks impacting lead paint may be exposed to lead at or above the OSHA Action Level of 30 $\mu g/m^3$. Assessments shall be based on initial air monitoring results as well as other relevant information. The Contractor may rely on historical air monitoring data obtained within the past 12 months under workplace conditions closely resembling the process, type of material, control methods, work practices and environmental conditions used and prevailing in the Contractors current operations to satisfy the exposure assessment requirements. Monitoring shall continue as specified in the OSHA standard until a negative exposure assessment is developed.

Until a negative exposure assessment is developed for each task impacting lead paint, the Contractor shall ensure that all workers and authorized person entering the Regulated Area wear protective clothing and respirators in accordance with OSHA 29 CFR 1926.62. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings. Sufficient quantities shall be provided to last throughout the duration of the project.

Protective clothing provided by the Contractor and used during chemical removal operations shall be impervious to caustic materials. Gloves provided by the Contractor and used during chemical removal shall be of neoprene composition with glove extenders.

Respiratory protective equipment shall be provided and selection shall conform to 42 CFR Part 84, 29 CFR Part 1910.134, and 29 CFR Part 1926.62. A formal respiratory protection program must be implemented in accordance with 29 CFR Part 1926.62 and Part 1910.134.

E. Air Monitoring Requirements

The Contractor shall:

1. Provide air monitoring equipment including sample filter cassettes of the type and quantity required to properly monitor operations and personnel exposure surveillance throughout the duration of the project.

2. Conduct initial exposure monitoring to determine if any employee performing construction tasks impacting lead paint may be exposed to lead at or above the OSHA Action Level of 30 micrograms per cubic meter. Monitoring shall continue as specified in the OSHA standard until a negative exposure assessment is developed.

3. Conduct personnel exposure assessment air sampling, as necessary, to assure that workers are using appropriate respiratory protection in accordance with OSHA Standard 1926.62. Documentation of air sampling results must be recorded at the

work site within twenty-four (24) hours and shall be available for review until the job is complete.

F. Lead Abatement Procedures

The Contractor's Competent Person shall be at the job site at all times during work impacting lead.

Work impacting lead paint shall not begin until authorized by the Engineer, following a pre-work visual inspection by the Project Monitor or Engineer to verify existing conditions.

Any activity impacting lead painted surfaces shall be performed in a manner which minimizes the spread of lead dust contamination and generation of airborne lead.

The Contractor shall conduct exposure assessments for all tasks which impact lead paint in accordance with 29 CFR 1926.62(d) and shall implement appropriate personal protective equipment until negative exposure assessments are developed.

All work impacting the materials identified below shall be conducted within an established Regulated Area with a remote wash facility/decontamination system in accordance with "C. Wash Facilities" and the OSHA Lead in Construction Standard. In accordance with 29 CFR 1926.62, engineering controls and work practices shall be utilized to prevent the spread of lead dust and debris beyond the Regulated Area and limit the generation of airborne lead. All wastes containing lead paint shall be properly contained and secured for storage, transportation and disposal.

The Contractor shall ensure proper entry and exit procedures for workers and authorized persons who enter and leave the Regulated Area. All workers and authorized persons shall leave the Regulated Area and proceed directly to the wash or shower facilities where they will HEPA vacuum gross debris from work suit, remove and dispose of work suit, wash and dry face and hands, and vacuum clothes. Lead chips and dust must not be removed by blowing or shaking of clothing. Wash water shall be collected, filtered, and disposed of in accordance with Federal, State and local water discharge standards. Any permit required for such discharge shall be the responsibility of the Contractor.

No one shall eat, drink, smoke, chew gum or tobacco, or apply cosmetics while in the Regulated Area.

Data from the limited lead testing performed by the Engineer is documented in the reports listed in the "Notice to Contractor – Hazardous Materials Investigations" or is presented herein. Under no circumstances shall this information be the sole means used by the Contractor for determining the extent of lead painted materials. The Contractor shall be responsible for verification of all field conditions affecting performance of the work as described in these Specifications in accordance with OSHA, USEPA, USDOT and CTDEEP standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.

The following details the extent of each phase of operation designated for this project. Phase areas may be combined or divided at the direction of the Engineer. Proceed through the sequencing of the work phases under the direction of the Engineer.

Site No. 1 - Bridge No. 00726, Route 15 under Newtown Turnpike, Westport

- **There were no painted surfaces at Bridge No. 00726, therefore there is no lead paint.**

Site No. 2 - Bridge No. 05763, Route 15 over Route 33 (Wilton Road), Westport

- **Detectable amounts of lead were identified on the painted concrete surfaces of Bridge No. 05763.**

Abutments, decking, etc.	**Concrete**	**White**	**0.42 mg/l**

- **TCLP waste stream sampling/analysis of the paint associated with the concrete surfaces characterized the paint waste as non-RCRA, non- hazardous waste.**

Paint debris	**0.42 mg/l**

Site No. 3 - Bridge No. 00728, Route 15 over Saugatuck River, Westport

- **Detectable amounts of lead were identified on the painted metal surfaces of Bridge No. 00728.**

Girders, Cross Beams, Beam Ends, Bearings, Rockers, Diaphragms, Connection plates, etc	**Metal**	**Green/Grey**	**0.1-9.5 mg/cm^2**

- **TCLP waste stream sampling/analysis of the paint associated with the structural steel bridge surfaces characterized the paint waste as RCRA/CTDEEP hazardous waste.**

Paint debris	**7.3 mg/l**

Site No. 4 - Bridge No. 00729, Route 15 under Clinton Avenue, Westport

- **Detectable amounts of lead were identified on the painted metal surfaces of Bridge No. 00729.**

Girders, Cross Beams, Beam Ends, Bearings, Rockers, Diaphragms, Connection plates, etc	**Metal**	**Green**	**11.6-14.0 mg/cm^2**
Railing	**Metal**	**Grey**	**0.1-0.2 mg/cm^2 0.20% by weight**

- **TCLP waste stream sampling/analysis of the paint associated with the structural steel bridge surfaces characterized the paint waste as RCRA/CTDEEP hazardous waste.**
- **TCLP waste stream sampling/analysis of the paint associated with the metal railing and concrete surfaces characterized the paint waste as non-RCRA, non- hazardous waste.**

Paint debris (structural)	**300 mg/l**
Paint debris (railing)	**1.2 mg/l**
Paint debris (concrete)	**0.044 mg/l**

Site No. 5 - Bridge No. 00730, Route 15 over Route 57 (Weston Road), Westport

- **Detectable amounts of lead were identified on the painted concrete surfaces of Bridge No. 00730.**

Abutments, decking, etc.	**Concrete**	**White**	**0.019 mg/l**

- **TCLP waste stream sampling/analysis of the paint associated with the concrete surfaces characterized the paint waste as non-RCRA, non- hazardous waste.**

Paint debris	**0.019 mg/l**

Site No. 6 - Bridge No. 00731, Route 15 over Easton Road, Westport

- **Due to inaccessibility to the painted bridge surfaces, any paint on the structural steel/metal bridge surfaces of Bridge No. 00731 is presumed as lead paint.**

- **Due to inaccessibility to the painted bridge surfaces, it is presumed that the any paint waste stream is RCRA/CTDEEP hazardous waste.**

Site No. 8 - Bridge No. 00733, Route 15 over Bayberry Lane, Westport

- **Detectable amounts of lead were identified on the painted concrete surfaces of Bridge No. 00733.**

Abutments, decking, etc.	**Concrete**	**White, Tan, Beige & Brown**	**0.028 mg/l**

- **TCLP waste stream sampling/analysis of the paint associated with the concrete surfaces characterized the paint waste as non-RCRA, non- hazardous waste.**

Paint debris	**0.028 mg/l**

Site No. 9 - Bridge No. 00734, Route 15 over Cross Highway, Fairfield

- **Detectable amounts of lead were identified on the painted concrete surfaces of Bridge No. 00734.**

Abutments, decking, etc.	**Concrete**	**Brown**	**0.14 mg/l**

- **TCLP waste stream sampling/analysis of the paint associated with the concrete surfaces characterized the paint waste as non-RCRA, non- hazardous waste.**

Paint debris	**0.14 mg/l**

Site No. 10 - Bridge No. 00735, Route 15 under Merwins Lane, Fairfield

- **Detectable amounts of lead were identified on the painted metal railing surfaces of Bridge No. 00735.**

Railing	**Metal**	**Grey**	**1.1-3.8 mg/cm^2**

- **TCLP waste stream sampling/analysis of the paint associated with the metal railing surfaces characterized the paint waste as RCRA/CTDEEP hazardous waste.**

Paint debris	**27 mg/l**

Site No. 11 - Bridge No. 00736, Route 15 under Redding Road, Fairfield

- **There were no painted surfaces at Bridge No. 00736, therefore there is no lead paint.**

While conducting work to the bridges, where it is necessary to impact the lead painted surfaces, the Contractor shall either:

a. **Remove the paint to be impacted prior to impacting the substrate in accordance with OSHA Lead in Construction Standard 29CFR 1926.62, or**
b. **Impact the substrate using mechanical means with the paint in place in accordance with OSHA Lead in Construction Standard 29CFR 1926.62.**

The Contractor shall submit a Work Plan to ConnDOT outlining the exact procedures that will be used to perform the work, contain the spread of lead debris and protect the employees performing the required renovation work impacting the lead paint. No work shall be started by the Contractor until the Work Plan is approved by the Engineer.

All work impacting the lead paint materials shall be conducted within an established Regulated Area with a remote wash facility/decontamination system in accordance with "C. Wash Facilities" and the OSHA Lead in Construction Standard. In accordance with 29 CFR 1926.62, engineering controls and work practices shall be utilized to prevent the spread of lead dust and debris beyond the Regulated Area and limit the generation of airborne lead. All wastes containing lead paint shall be properly contained and secured for storage, transportation and disposal.

The Engineer has characterized the paint waste stream associated with the metal painted bridge components at Site No. 3, Site No. 4 (structural steel) and Site No. 10 (railings) as RCRA hazardous waste. If the paint is removed from the metal bridge surfaces, the paint shall be handled and disposed of in accordance with USEPA/CTDEEP Hazardous Waste Regulations as described under this Item 0020903A.

The Engineer has characterized the paint waste stream associated with the metal/concrete painted surfaces at Site No.2 (concrete), Site No. 4 (railings/concrete), Site No. 5 (concrete), Site No. 8 (concrete) & Site No. 9 (concrete) as non-hazardous. If the paint is removed from the metal surfaces, the paint shall be handled and disposed of as non-hazardous, non-RCRA waste.

At Site No. 6, any paint waste to be generated is presently presumed to be hazardous waste. Should the paint be removed from the components, the Engineer will conduct TCLP testing or mass balance calculations on a representative sample of the lead paint waste materials to confirm if it is classified as a hazardous waste or non-hazardous, non-RCRA waste. Should the waste material be determined to be hazardous, it shall be handled and disposed of in accordance with USEPA/CTDEEP Hazardous Waste Regulations as described under this Item 0020903A. If the waste material is determined to be non-hazardous, it shall be disposed of as non-hazardous, non-RCRA waste as described under this Item 0020903A.

All steel and metal components generated from the miscellaneous exterior work tasks (painted or not) shall be segregated and recycled as scrap metal. The recycling of scrap metal (regardless of lead paint concentration) is exempt from USEPA RCRA and CTDEEP Hazardous Waste Regulation.

Should lead contamination be discovered outside of the Regulated Area, the Contractor shall immediately stop all work in the Regulated Area, eliminate causes of such contamination and take steps to decontaminate non-work areas.

Special Requirements:

1. Demolition/Renovation:

    a. Demolish/renovate in a manner which minimizes the spread of lead contamination and generation of lead dust.

    b. Implement dust suppression controls, such as misters, local exhaust ventilation, etc. to minimize the generation of airborne lead dust.

    c. Segregate work areas from non-work areas through the use or barrier tape, drop cloths, etc.
    d. Clean up immediately after renovation/demolition has been completed

2. Chemical Removal:

    a. Apply chemical stripper in quantities and for durations specified by manufacturer.

    b. Where necessary, scrape lead paint from surface down to required level of removal (i.e. stabilized surface, bare substrate with no trace of residual pigment, etc.). Use sanding, hand scraping, and dental picks to supplement chemical methods as necessary.

    c. Apply neutralizer compatible with substrate and chemical agent to substrate following removal in accordance with manufacturer's instructions.

d. Protect adjacent surfaces from damage from chemical removal.

e. Maintain a portable eyewash station in the work area.

f. Wear respirators that will protect workers from chemical vapors.

g. Do not apply caustic agents to aluminum surfaces.

3. Mechanical Paint Removal:

a. Provide sanders, grinders, rotary wire brushes, or needle gun removers equipped with a HEPA filtered vacuum dust collection system. Cowling on the dust collection system for orbital-type tools must be capable of maintaining a continuous tight seal with the surface being abated. Cowling on the dust collection system for reciprocating-type tools shall promote an effective vacuum flow of loosened dust and debris. Inflexible cowlings may be used on flat surfaces only. Flexible contoured cowlings are required for curved or irregular surfaces.

b. Provide HEPA vacuums that are high performance designed to provide maximum static lift and maximum vacuum system flow at the actual operating vacuum condition with the shroud in use. The HEPA vacuum shall be equipped with a pivoting vacuum head.

c. Remove lead paint from surface down to required level of removal (i.e. stabilized surface, bare substrate with no trace of residual pigment, etc.). Use chemical methods, hand scraping, and dental picks to supplement abrasive removal methods as necessary.

d. Protect adjacent surfaces from damage from abrasive removal techniques.

e. “Sandblasting” type removal techniques shall not be allowed.

4. Component Removal/Replacement:

a. Wet down components which are to be removed to reduce the amount of dust generated during the removal process.

b. Remove components utilizing hand tools, and follow appropriate safety procedures during removal. Remove the components by approved methods which will provide the least disturbance to the substrate material. Do not damage adjacent surfaces.

c. Clean up immediately after component removals have been completed. Remove any dust located behind the component removed.

G. Prohibited Removal Methods:

The use of heat guns in excess of 700 degrees Fahrenheit to remove lead paint is prohibited.

The use of sand, steel grit, air, CO_2, baking soda, or any other blasting media to remove lead or lead paint without the use of a HEPA ventilated contained negative pressure enclosure is prohibited.

Power/pressure washing shall not be used to remove lead paint.

Compressed air shall not be utilized to remove lead paint.

Chemical strippers containing Methylene Chloride are prohibited. Any chemical stripping may be prohibited on a project by project basis.

Power tool assisted grinding, sanding, cutting, or wire brushing of lead paint without the use of cowled HEPA vacuum dust collection systems is prohibited.

Lead paint burning, busting of rivets painted with lead paint, welding of materials painted with lead paint, and torch cutting of materials painted with lead paint is prohibited. Where cutting, welding, busting, or torch cutting of materials is required, lead paint in the affected area must be removed first.

Chemical stripping of coatings from bridge components is generally prohibited unless specifically allowed on a project by project basis.

H. Clean-up and Visual Inspection:

The Contractor shall remove and containerize all lead waste material and visible accumulations of debris, paint chips and associated items.

During clean-up the Contractor shall utilize rags and sponges wetted with lead-specific detergent and water as well as HEPA filtered vacuum equipment.

The Engineer will conduct a visual inspection of the work areas in order to document that all surfaces have been maintained as free as practicable of accumulations of lead in accordance with 29 CFR 1926.62(h). If visible accumulations of waste, debris, lead paint chips or dust are found in the work area, the Contractor shall repeat the cleaning, at the Contractor's expense, until the area is in compliance. The visual inspection will detect incomplete work, damage caused by the abatement activity, and inadequate clean up of the work site.

I. Post-Work Regulated Area Deregulation:

Following an acceptable visual inspection, any engineering controls implemented may be

removed.

A final visual inspection of the work area shall be conducted by the Competent Person and the Project Monitor or Engineer to ensure that all visible accumulations of suspect materials have been removed and that no equipment or materials associated with the lead paint removal remain. If this final visual inspection is acceptable, the Contractor will reopen the Regulated Area and remove all signage.

The Contractor shall restore all work areas and auxiliary areas utilized during work to conditions equal to or better than original. Any damage caused during the performance of the work activity shall be repaired by the Contractor at no additional expense to the State.

J. Waste Disposal/Recycling:

Non-metallic building debris waste materials tested and found to be non-hazardous Construction and Demolition (C&D) bulky waste shall be disposed of properly at a CTDEEP approved Solid Waste landfill as described under this Item 0020903A.

Metallic debris shall be segregated and recycled as scrap metal at an approved metal recycling facility.

Concrete, brick, etc. coated with any amount of lead paint cannot be crushed, recycled or buried on-site to minimize waste disposal unless tested and found to meet the RSR GA/Residential standards.

Hazardous lead debris shall be disposed of as described under this Item 0020903A.

The Contractor shall comply with the latest requirements of the USEPA RCRA Hazardous Waste Regulations 40 CFR 260-274 and the DEEP Hazardous/Solid Waste Management Standards 22a-449(c).

Hazardous lead debris shall be transported from the Project by a licensed hazardous waste transporter approved by the Department and disposed of at an EPA-permitted and Department-approved hazardous waste landfill within 90 days from the date of generation.

The Contractor must use one or more of the following Department-approved disposal facilities for the disposal of hazardous waste:

Clean Earth of North Jersey, Inc., (CENJ) 115 Jacobus Avenue, South Kearny, NJ 07105 Phone: (973) 344-4004; Fax: (973) 344-8652	Clean Harbors Environmental Services, Inc. 2247 South Highway 71, Kimball, NE 69145 Phone: (308) 235-8212; Fax: (308) 235-4307
Clean Harbors of Braintree, Inc. 1 Hill Avenue, Braintree, MA 02184 Phone: (781) 380-7134; Fax: (781) 380-7193	Cycle Chem (General Chemical Corp.) 217 South First Street, Elizabeth, NJ 07206 Phone: (908) 355-5800; Fax (908) 355-0562

EnviroSafe Corporation Northeast (former Jones Environmental Services (NE), Inc.) 263 Howard Street, Lowell, MA 01852 Phone: (978) 453-7772; Fax: (978) 453-7775	Environmental Quality Detroit, Inc. 1923 Frederick Street, Detroit, MI 48211 Phone: (800) 495-6059; Fax: (313) 923-3375
Republic Environmental Systems 2869 Sandstone Drive, Hatfield, PA 19440 Phone: (215) 822-8995; Fax: (215) 997-1293	Northland Environmental, Inc. (PSC Environmental Systems) 275 Allens Avenue, Providence, RI 02905 Phone: (401) 781-6340; Fax: (401) 781-9710
Environmental Quality Company: Wayne Disposal Facility 49350 North I-94 Service Drive Belleville, MI 48111 Phone: (800) 592-5489; Fax: (800) 592-5329	

No facility may be substituted for the one(s) designated in the Contractor's submittal without the Engineer's prior approval. If the material cannot be accepted by any of the Contractor's designated facilities, the Department will supply the Contractor with the name(s) of other acceptable facilities.

Prior to the generation of any hazardous waste, the Contractor shall notify the Engineer of its selected hazardous waste transporter and disposal facility. The Contractor must submit to the Engineer (1) the transporter's current US DOT Certificate of Registration and (2) the transporter's current Hazardous Waste Transporter Permits for the State of Connecticut, the hazardous waste destination state and any other applicable states. The Engineer will then obtain on a contiguous per site basis a temporary EPA Generators ID number for the site that he will forward to the Contractor. Any changes in transporter or facility shall be immediately forwarded to the Engineer for review.
Handling, storage, transportation and disposal of hazardous waste materials generated as a result of execution of this project shall comply with all Federal, State and Local regulations including the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260-271), the CTDEEP Hazardous Waste Regulations (22a-209 and 22a-449(c)), and the USDOT Hazardous Materials Regulations (49 CFR Part 171-180).

All debris shall be contained and collected daily or more frequently as directed by the Engineer, due to debris buildup. Debris shall be removed by HEPA vacuum collection. Such debris and paint chips shall be stored in leak-proof storage containers in the secured storage site, or as directed by the Engineer. The storage containers and storage locations shall be reviewed by the Engineer and shall be located in areas not subject to ponding. Storage containers shall be placed on pallets and closed and covered with tarps at all times except during placement, sampling and disposal of the debris.

Hazardous waste materials are to be properly packed and labeled for transport by the Contractor is accordance with EPA, CTDEEP and USDOT regulations. The disposal of debris characterized as hazardous waste shall be completed within 90 calendar days of the date on

which it began to be accumulated in the lined containers. Storage of containers shall be in accordance with current DEEP/EPA procedures.

The Contractor shall label hazardous waste storage containers with a 6-inch square, yellow, weatherproof, Hazardous Waste sticker in accordance with USDOT regulations.

Materials other than direct paint related debris which are incidental to the paint removal work activities (tarps, poly, plywood, PPE, gloves, decontamination materials, etc.) which may be contaminated with lead, shall be stored separately from the direct paint debris, and shall be sampled by the Engineer for waste disposal characterization testing. Such materials characterized as hazardous shall be handled/disposed of as described herein, while materials characterized as non-hazardous shall be disposed of as non-hazardous CTDEEP Solid Waste.

Direct paint related debris materials not previously sampled and characterized for disposal, which may be originally presumed to be hazardous waste, shall also be stored separately and sampled by the Engineer for ultimate waste disposal characterization testing and handled/disposed of based on that testing.

Project construction waste materials unrelated to the paint removal operations shall NOT be combined/stored with paint debris waste and/or incidental paint removal materials as they are not lead contaminated and shall NOT be disposed of as hazardous waste. The Engineer's on-site Inspectors shall conduct inspections to verify materials remain segregated.

The Contractor shall obtain and complete all paperwork necessary to arrange for material disposal, including disposal facility waste profile sheets. It is solely the Contractor's responsibility to co-ordinate the disposal of hazardous materials with its selected treatment/recycling/disposal facility(s). Upon receipt of the final approval from the facility, the Contractor shall arrange for the loading, transport and treatment/recycling/disposal of the materials in accordance with all Federal and State regulations. **No claim will be considered based on the failure of the Contractor's disposal facility(s) to meet the Contractor's production rate or for the Contractor's failure to select sufficient facilities to meet its production rate.**

The Contractor shall process the hazardous waste such that the material conforms with the requirements of the selected treatment/disposal facility, including but not limited to specified size and dimension. Refusal on the part of the treatment/disposal facility to accept said material solely on the basis of non-conformance of the material to the facility's physical requirements is the responsibility of the Contractor and no claim for extra work shall be accepted for reprocessing of said materials to meet these requirements.

All DOT shipping documents, including the Uniform Hazardous Waste Manifests utilized to accompany the transportation of the hazardous waste material shall be prepared by the Contractor and reviewed/signed by an authorized agent representing ConnDOT, as Generator, for each load of hazardous material that is packed to leave the site. The Contractor shall not sign

manifests on behalf of the State as Generator. The Contractor shall forward the appropriate original copies of all manifests to the Engineer the same day the material leaves the Project site.

Materials not related to lead paint removal and/or characterized as non-hazardous waste shall NOT be shipped for hazardous waste disposal in accordance with USEPA RCRA hazardous waste minimization requirements.

A load-specific certificate of disposal, signed by the authorized agent representing the waste disposal facility, shall be obtained by the Contractor and promptly delivered to the Engineer for each load.

In addition to all pertinent Federal, State and local laws or regulatory agency polices, the Contractor shall adhere to the following precautions during the transport of hazardous materials off-site:

- All vehicles departing the site are to be properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume, and contents of materials carried. Vehicles shall display the proper USDOT placards for the type and quantity of waste;

- No materials shall leave the site unless a disposal facility willing to accept all of the material being transported has agreed to accept the type and quantity of waste;

- Documentation must be maintained indicating that all applicable laws have been satisfied and that the materials have been successfully transported and received at the disposal facility; and,

- The Contractor shall segregate the waste streams (i.e. concrete, wood, etc.) as directed by the receiving disposal facility.

Any spillage of debris during disposal operations during loading, transport and unloading shall be cleaned up in accordance with EPA 40 CFR 265 Subparts C & D, at the Contractor's expense.

The Contractor is liable for any fines, costs or remediation costs incurred as a result of their failure to be in compliance with this Item and all Federal, State and Local laws.

K. Project Closeout Data:

Provide the Engineer, within thirty (30) days of completion of the project site work, a compliance package; which shall include, but not be limited to, the following:

1. Competent persons (supervisor) job log;
2. OSHA-compliant personnel air sampling data;
3. Completed waste shipment papers for non-hazardous lead construction and demolition (C&D) waste disposal or recycling and scrap metal recycling.

4. Copies of completed Hazardous Waste Manifests (signed by authorized disposal facility representative).

Method of Measurement:

The completed work shall be paid as a lump sum. This item will include all noted services, equipment, facilities, testing and other associated work for up to three (3) ConnDOT project representatives. Services provided to any ConnDOT project representatives in excess of three (3) representatives will be measured for payment in accordance with Article 1.09.04 – "Extra and Cost-Plus Work."

Basis of Payment:

The lump sum price bid for this item shall include: services, materials, equipment, all permits, notifications, submittals, personal air sampling, personal protection equipment, temporary enclosures, incidentals, fees and labor incidental to activities impacting lead removal, treatment and handling of lead contaminated materials, and the transport and disposal of any hazardous and/or non-hazardous, non-RCRA lead waste.

Final payment will not be made until all project closeout data submittals have been completed and provided to the Engineer. Once the completed package has been received in its entirety and accepted by the Engineer, final payment will be made to the Contractor.

Pay Item	Pay Unit
Lead Compliance for Miscellaneous Exterior Tasks	Lump Sum

END OF SECTION

ITEM #0601201A - CLASS "F" CONCRETE

Section 6.01 shall be amended as follows:

Article 6.01.01 – Description: *Add the following:*

This item shall also include furnishing and installing a proprietary chemical admixture, Hycrete X1002, in accordance with the details shown on the plans, in accordance with these specifications and as ordered by the Engineer.

Article 6.01.02 – Materials: *Add the following:*

No pozzolans are permitted

Article M.03.01-5 – Admixtures: *Add the following:*

The Contractor shall submit a concrete mix design for approval by the Engineer that properly addresses proportions of the following materials:

> Other Chemical Admixtures: Hycrete X1002 manufactured by Hycrete Inc. shall be used as concrete admixture in strict accordance with the manufacturer's specification.

Article 6.01.05 – Basis of Payment: *Add the following:*

The price shall also include all materials, equipment, tools, labor and work required to design a concrete mix with Hycrete admixture.

ITEM #1131007A - PORTABLE WORK ZONE MANAGEMENT SYSTEM DEPLOYMENT

ITEM #1131008A - PORTABLE WORK ZONE MANAGEMENT SYSTEM OPERATIONS

ITEM #1131009A - PORTABLE WORK ZONE MANAGEMENT SYSTEM QUEUE TRAILER/SENSOR (PQT)

ITEM #1131012A - PORTABLE WORK ZONE MANAGEMENT SYSTEM CHANGEABLE MESSAGE SIGN/QUEUE SENSOR TRAILER (PCMQ)

ITEM #1131013A - PORTABLE WORK ZONE MANAGEMENT SYSTEM TRAILER RELOCATION

ITEM #1131014A - PORTABLE WORK ZONE MANAGEMENT SYSTEM MOBILE VIDEO CAMERA/QUEUE SENSOR TRAILER (PVQS)

Description: This work shall consist of furnishing, installing, operating, relocating and removing an automated Portable Work Zone Management System (PWZMS) and providing service and maintenance of the complete system for the duration of the Project.

These items shall include vehicle trailers with designated sensors, changeable message signs, processed rock for leveling trailers, cameras, website, communications equipment, relocation, service, and maintenance. Included in the operational responsibilities is the assumption of all trailer license plates, communication costs such as FCC licensing, cellular telephone, wireless data networks, satellite and internet subscription charges, solar system support and battery charging, and maintenance. In addition to these requirements, the Contractor shall assume all responsibility for any damaged equipment included in the system due to crashes, vandalism, adverse weather, etc. that may occur during system deployment.

This system shall monitor the Project's work zone area and provide DOT operators control of the cameras to disseminate real-time information to the traveling public and other stakeholders. The system shall be completely operational 14 days prior to the start of roadwork to allow for traffic data accumulation by the system. The PWZMS shall consist of an automated system using trailer-mounted microwave sensors that transmit vehicle speed and related data through cellular communications to a Contractor-hosted central computer system. The Closed Circuit Television (CCTV) shall be used to verify traffic conditions within the viewable area of the CCTV. The central computer system shall send automated commands to changeable message signs through cellular communications to display travel time, delay and stopped traffic information. The speed data, video images, and changeable message sign content shall be hosted on a Contractor-supplied website.

The PWZMS shall be capable of detecting the presence of queued traffic in the segments identified on the plans and reporting via the queue warning Portable Work Zone Management System Changeable Message Sign/Queue Sensor Trailer (PCMQ). The distance from the PCMQ to the detected back of queue shall be reported within 1/2 mile accuracy on the system, but reported on the PCMQ at 1 mile accuracy rounded up to the nearest mile. This "real-time" queue location information shall be calculated and displayed on the applicable PCMQ to the nearest minute.

The PWZMS shall have the capability to notify the construction field office, Contractor or others, as determined by the Engineer, of travel times and when the speed through the work zone decreases below 30 mph. The system shall be capable of transferring real-time data in a file format compatible with Oracle®. "Motion" video feeds updated once per 1 second shall be available for the Department to display on the Contractor-provided website. In addition, any number of Department or Contractor employees shall be notified via email or text message for these speed changes. Contact information will be furnished by the Engineer at the start of the Project.

All the required components of the PWZMS shall be fully operational within 45 days of notice to deploy from the Engineer. If not fully operational within said 45 days, a payment reduction of 5% for each day the entire system is not operating will apply, as determined by the Engineer.

Once operations begin, the PWZMS shall perform with no major malfunctions throughout the Contract, unless the Engineer requests the system or portions of the system be removed. Malfunctions include, but are not limited to, the inability of the equipment to provide accurate real-time video feeds, delay, or travel time information, inability to withstand the construction roadside environment or normal weather conditions. The Engineer reserves the right to terminate this item at any time if it is determined the PWZMS is not performing in accordance with this specification.

Construction Methods:

Submittals:

1. At least 20 days prior to beginning installation, the Contractor shall submit to the Engineer for review and approval, in consultation with the Department's Subject Matter Expert, evidence that the proposed supplier has successfully completed at least 5 PWZMS projects similar in concept and scope to the proposed system in the past 5 years. The proposed supplier shall also provide the credentials of a qualified technician who shall install and operate the system. Include names, addresses, and telephone numbers of the similar project's owner's representatives for verification.
2. Also, at least 20 days prior to beginning installation, submit brochures and cut sheets on all units of the PWZMS, with details of how and which communications systems shall be used, and the technical specifications for the website.
3. The Contractor shall demonstrate to the Engineer an operating PWZMS.
4. At least 2 weeks prior to installation, the Contractor shall propose the actual device layout to the Department for review and approval.

5. Prior to public viewing, the website map showing device locations and other interactive elements shall be submitted for the Engineer's review.

Equipment:

1. The PWZMS shall consist of the following equipment.
   a) Five (5) Mobile Video Camera/Queue Sensors (PVQS) with camera with pan-tilt-zoom (PTZ). The computer hardware and software must meet the manufacturer's requirements to operate and monitor the system.
   b) Nine (9) Portable Work Zone Management System Queue Trailers/Sensors (PQTs)
   c) Four (4) Portable Work Zone Management System Changeable Message Signs/Queue Sensor Trailers (PCMQs) to display real-time travel time messaging and back of queue warning to the traveling public
   d) Communication equipment including wireless data networks, base stations, cell phone data interfaces, Ethernet network interfaces, and internet interfaces
   e) Customized Webpage integrated with the PWZMS to include traveling public and Project staff accessibility; PWZMS website shall be allowed to "link" to the Department's website
   f) Software package customized for this particular Project's needs

The Engineer reserves the right to add or remove locations as needed.

2. The following shall be provided for each PQT, PCMQ and PVQS with PTZ:
   a) Approximate locations of changeable message signs and traffic sensors shown on the plans may be adjusted to ensure sightlines and safety are adequate
   b) Clean stone or processed rock to provide a level area for trailers and provide for sufficient height for sensors to operate correctly
   c) Individually mounted on trailer units with solar power
   d) Equipped with digital wireless cellular modems as required
   e) Linked to the Contractor's central computer server
   f) Maintained as needed to remain operational, including cleaning and inspecting components, snow and ice removal from solar panels and keeping batteries charged
   g) Extra set of programming instructions stored in the units for emergency use

3. The Portable Work Zone Management System Mobile Video Camera/Queue Sensor Trailer (PVQS), Portable Work Zone Management System Queue Trailer/Sensor (PQT), and Portable Work Zone Management System Changeable Message Signs/Queue Sensor Trailers (PCMQ) shall collect and process traffic data as programmed within the software provided with the sensor. This data shall be transmitted over a digital cellular network to access and store the respective data remotely. The remote monitoring and data collection shall be placed in areas where wireless communication is available. The Queue Sensor System shall use both solar power and deep cycle batteries to provide a self-contained completely autonomous system.

The Portable Work Zone Management System Video Camera(s) shall provide a portable, self-contained, all-weather, trailer-mounted equipment platform. Portable camera system shall use wireless communication. The PVQS camera shall provide a rapidly-deployable real-time video system viewable from a remote location. The PVQS camera shall be capable as a stand-alone camera system.

   a) Trailer and power requirements:
      i. 2-wheel industrial grade trailer with stabilizer legs

ii. Available as a portable unit or permanent mount
iii. Adjustable solar array for maximum exposure to sun
iv. Removable trailer tongue
v. Battery bank sized for 30-day autonomy

b) Video Camera/Queue Trailer Sensor (PVQS) requirements:
i. Microwave detection (Wavetronix Smart Sensor HD or approved equal) with Dual Radar that reliably detects up to 22 lanes of traffic, auto configuration
ii. Provide data including speed, volume and occupancy
iii. Digital cellular communications
iv. Dome camera with day/night adjustable pan/tilt/zoom IP addressable
v. Minimum 30 ft extendable mast with 360 degree lockable rotation
vi. Capable of providing streaming or snapshot video
vii. Electric hoists for rapid deployment

c) Queue Trailer/Sensor (PQT) requirements:
i. Microwave detection reliably detects up to 6 lanes of traffic
ii. Data provided includes speed, volume and occupancy
iii. Available as a portable unit or permanent mount
iv. Digital cellular communications

4. The Portable Work Zone Management System Changeable Message Sign/Queue Sensor Trailer (PCMQ) shall be configured with the following changeable message sign requirements or approved equal:

a) Trailer and power requirements:
i. 2-wheeled trailer structurally adequate to serve as both a carrier and an operating platform
ii. Meets Federal Regulations for safety and travel
iii. Color of trailer paint shall be safety orange or as approved by the Engineer
iv. Bank of batteries capable of being recharged automatically by a group of solar panels located at the highest point on the unit
v. Changeable message signs shall be designed with sufficient energy backup to operate for a period of 30 days (minimum) at 75°F without sun exposure
vi. Solar panel generator array shall recharge the battery bank at a rate of 2 1/2 hours peak sun per 24 hour period of usage
vii. Solar panel array sized to replace the power used in typical daily operation with less than 4 hours of sun
viii. Deep cycle, lead acid 12 volt batteries wired in parallel, housed in a lockable heavy duty steel weatherproof battery box
ix. Batteries recharged by a solar panel array producing 110 watts of power minimum
x. Built-in battery charger with minimum 25 ampere per hour rating
xi. Solar charge current meter and battery charger current meter visible
xii. Protective housing painted with manufacturer’s standard colors

b) Changeable Message Sign/Queue Sensor requirements:
i. Sign panel of welded aluminum alloy construction, assembled to prevent dissimilar metal action from occurring
ii. Length of sign panel 128 inches or less

iii. Front face of sign covered with clear UV-inhibited polycarbonate to prevent fading
iv. Message center:
1) 3 separate lines, center justified
2) Each line up to 8 characters, equally spaced a minimum of 3 inches apart
3) Each character 18 inches high by 12 inches wide
4) Each character configured with 35 LED lamp pixels in a 5 x 7 element arrangement
5) Message color 590 nanometers (yellow-orange)
i. Remote sign operation via central computer
ii. Messages to be displayed shall have capability to be timed to changes at various times of day and days of week
iii. Trailer-mounted variable message board consisting of optically enhanced LED lamp matrix panels powered by a bank of batteries in order to convey bright, distinctive messages to the traveling public
iv. Sign capable of displaying up to 8 pages in a multiple page message, with variable timing in 1/10 second increments under computer control
v. Sign shall completely change all lines of message copy in not more than 100 milliseconds
vi. Sign clearly visible and legible from a distance of 800 feet under both day and night conditions, with a photocell automatically adjusting its light source for variable light level conditions
vii. Sign panel supported on a telescoping upright member with hydraulic lift to permit raising the sign for operation and lowering the sign for transport
viii. Telescoping upright able to rotate 360 degrees and shall lock into position
ix. Telescoping distance of nominally 5 feet to allow bottom of sign to be at least 7 feet above the ground
x. Sign panel shall pivot to the longitudinal axis of the trailer for transport, to reduce aerodynamic drag
xi. Static sign attached identifying the message board is for the Project; coordinate sign content and appearance with the Engineer
xii. Microwave detection (Wavetronics Smart Sensor HD or approved equal) with dual radar that reliably detects up to 22 lanes of traffic, auto configuration
xiii. Data provided from sensor to include speed, volume and occupancy
xiv. Available as a portable unit or permanent mount

c) Changeable Message Sign on-board dedicated computer requirements:
i. Solid state design, removable, including a keyboard through which user originated messages may be entered for display or storage
ii. LCD display screen upon which messages can be reviewed before display on the message sign
iii. Storage of a minimum of 100 preprogrammed messages for display when called upon by an operator through the keyboard and a minimum of 100 users originated multiple page messages.
iv. Password coding or key entry

v. Control programming to present sequenced messages under operator control through keyboard entry
vi. Control for moving arrow displays
vii. Calendar program to automatically start and stop the display of sequences at predetermined times
viii. Character board and battery diagnostics
ix. Computer housing: weather resistant, shock resistant lockable control box with a light for night operation
x. Power control unit housed in a lockable, steel, weatherproof battery box containing 2 current meters (to show amperage generated with battery charger and amperage from solar panels to battery bank
xi. Power control unit to incorporate a PV regulator with thermal compensation for variances in ambient temperature, to regulate the charge rate to the battery bank
xii. Control circuitry connected to Changeable Message Sign's photocell that detects ambient light conditions and reduces lamp intensity at night to reduce glare

d) Changeable Message Sign - other requirements:
i. Changeable Message Sign operation using cellular telephone and cellular telephone service (trailer must be located within cellular telephone coverage), allowing operator remote control of the on-board computer
ii. A Queue Trailer/Sensor may be located next to designated PCMQ to collect data
iii. The message sign shall provide for remote sign operation via central computer base station or Website allowing operators to manually override the automated messaging in order to display a message at any time. The operator shall be able to cancel this override and initiate the systems automated messaging feature.
iv. Any request to change messages on the Changeable Message Signs shall be approved by the Department.

Deployment and Operation:

The decision to deploy or remove individual devices or the entire PWZMS will be made by the Engineer. Once the decision is made to deploy the system, the Engineer will coordinate with the Contractor for the duration of system deployment.

1. The PWZMS shall be installed as shown in the approved layout. The locations may require repositioning as directed by the Engineer and as the Project continues. The system shall be maintained and operated for the duration of the Project or as directed by the Engineer. The Contractor shall service the PWZMS on a 6 month regular interval for a maximum of 6 service intervals. Additionally, the Contractor shall clean the Camera dome bubbles at least once (1) per month during the winter months between December and March for the duration of the project as directed by the Engineer. The service shall include cleaning the sign panel, removing snow/ice and debris from the solar panels as needed or as directed by the Engineer. The Contractor shall follow the manufacturer's requirements for cleaning the PVQS. The cost of the service shall be included in the monthly rate for each unit.

2. The Contractor shall prepare the locations to receive the equipment in accordance with the equipment manufacturer's requirements. Each location shall include clean stone or processed

rock provided and installed by the Contractor to level the surface area. Some location may require the trailers to be lifted over the safety barrier and placed on the level processed rock.

3. The Contractor shall install each of the system components in accordance with the manufacturer's recommendations, in compliance with all industry standards and codes such that each system is fully operational and can be operated and controlled from the Construction Field Office or remotely, as approved by the Engineer.

4. The Contractor shall coordinate the work with others as designated by the Engineer to complete installation and integration of all equipment for all system types.

5. System Calibration and Configuration: The PWZMS shall provide the following:
   a) Software shall be configured for notification to appropriate personnel at the Highway Operations Center, the Construction Field Office and the Contractor by email each time a malfunction has occurred in the system. A malfunction record shall also be made in the database. The software shall be configured so that any number of approved personnel can be notified. The email shall display an error message for the device or devices affected. Through the Contractor, the PWZMS Webpage Integrator shall be responsible for this notification procedure.
   b) Software shall be configured to provide current operational and location status (such as current traffic data and messages, communications system, signs, and sensors as well as latitude/longitude of all deployed devices) via the Internet to a dedicated Website established for the purpose of monitoring the corridor and the PWZMS equipment.
   c) Software shall be configured to assess any type of malfunction that has occurred. This assessment includes communications disruption between any device in the system configuration, changeable message board malfunctioning, speed sensor malfunction, loss of power, low battery, etc. This malfunction information shall be sent via email in text format to the Highway Operations Center, Engineer, or Contractor, as designated by the Engineer, for each occurrence.
   d) To support incident management, the PWZMS software shall be configured to allow Project staff to manually override motorist information messages for a user-specified duration; after which, automatic operation will resume with display of messages appropriate to the prevailing traffic conditions. All overriding messages shall have the message content and the username logged into the database.

6. Portable Work Zone Management System Website shall have the following:
   a) Password protected link for approved personnel to access the operational characteristics of the system, allowing manual override of errant messages.
   b) The website shall display current traffic conditions and real time speed at upstream locations to the nearest minute. The "real time" traffic delay information displayed on the PCMQ's shall be updated every 1 minute minimum with the website delay information updated simultaneously.
   c) The website shall allow the scheduling of messages by the operator on a sign or group of signs, to turn on and to turn off messages at times set in the future.
   d) Placement of all devices shall be shown on the dedicated website using latitude/longitude coordinates. The placement of these devices on the website shall be approved by the Engineer prior to release of the website.
   e) Via the internet and the dedicated website, the website shall provide a full color map using Google Maps or equivalent depicting the Project area with locations of traffic

sensors and PCMQ's. Using an administrator defined color-coding scheme, the map reflects the current average speed at each traffic sensor and displays the entire information message being shown by each PCMQ either on the map or on the side bar of the website. The map shall be automatically refreshed a minimum of once every minute to display any changes to traffic sensor(s) and/or PCMQ's. A legend of all icons and a short description of each shall be placed on the website.

f) The PWZMS Website shall provide a map with current traffic conditions by way of a colored layer over the road. The layer on the map shall display a different color for the different traffic speeds by use of colored bars over the existing road, with a legend explaining the meaning of each color. The color descriptions are as follows:
   i. less than 10 mph = black
   ii. less than 30 mph = red
   iii. less than 40 mph = orange
   iv. less than 50 = yellow
   v. 50 mph and over = green

7. Portable Work Zone Management System Operations

a) System Communications shall meet the following requirements:
   i. The Contractor shall perform the required configuration of the PWZMS's communications system during system initialization.
   ii. Communications between the server and any individual PCMQ or PVQS shall be independent through the full range of deployed locations and shall not rely upon communications with any other PCMQ or PVQS sensor.
   iii. The PWZMS communications system shall incorporate an error detection/ correction mechanism to insure the integrity of all traffic conditions data and motorist information messages.

b) In addition to meeting manufacturer's specifications, the Contractor shall program the PWZMS to ensure that the following General Operational requirements are met:
   i. The PWZMS traffic sensors shall be such that the accuracy is not degraded by inclement weather and visibility conditions including precipitation, fog, darkness, excessive dust and road debris. The sensors shall be capable of acquiring traffic data for a minimum of 22 lanes of traffic on a lane-by-lane basis.
   ii. The PWZMS shall operate continuously (24 hours, 7 days a week) when deployed on the Project. It shall always be collecting and storing data.
   iii. All traffic data and motorist information messages displayed by the PWZMS shall be archived in the database with time and date stamps.
   iv. The PWZMS shall be capable of acquiring traffic volume and speed data, developing travel times, and selecting motorist information messages automatically without operator intervention after system initialization.
   v. The PWZMS shall automatically select default and advisory messages based on traffic conditions at a single traffic sensor point or at multiple traffic sensor points in combination.
   vi. Administrative users shall be able to create and save a library of messages with up to 20 different default or automatic advisory messages for each PCMQ.
   vii. System operator control functions shall be password protected.

viii. To support incident management, the PWZMS shall allow the Engineer and Project staff with password privileges to manually override motorist information messages for a user-specified duration, after which automatic operation shall resume with display of messages appropriate to the prevailing traffic conditions.

ix. The PWZMS shall be capable of providing current operational status (such as current traffic data and messages, communications system, signs and sensors, video feeds) via the dedicated Project website.

x. For remote sign operation, the website shall allow password-protected access for Project staff to manually override automated messaging in order to display a message at any time. The staff shall be able to send a pre-programmed or custom message to a selected sign or group of signs. The staff shall be able to cancel this manual override and initiate any and all of the system's automated messaging features at any time.

xi. The default and advisory message content shall be programmable from the website as well as the field laptops.

xii. The dedicated Project website shall provide a full color map depicting the Project area with locations of PVQS sensors and PCMQ's. The graphical representation of each device location is based on latitude/longitude coordinates. The map shall show the current traffic conditions at each PQT and display the entire PCMQ message at each location.

xiii. The website shall have a link to the Department's website and the website shall allow the Department's website to link to it.

xiv. The system shall autonomously restart in case of power failure in any part of the system.

xv. Each PCMQ shall be capable of displaying 8 characters on each of 3 rows. Standard messages shall be as defined in "Portable Work Zone Management System Motorist Information Messages" section below.

xvi. Cameras must be capable of operating on both solar and AC power. Should the visibility of the traffic cameras be degraded by inclement weather including snow, precipitation, excessive dust or road debris, the Contractor shall clean the camera housing to restore proper viewing.

8. Training and Support required:
   a) Ensure that the PWZMS is furnished, installed and maintained by personnel who are experienced in this type of work. Deploying firm personnel must have a minimum of 5 similar deployments.
   b) Training shall be provided to Project staff on their authorized use and operation of the physical field hardware, software and website of the PWZMS.
   c) The Contractor shall supply training and documentation to enable the Engineer to add additional signs or traffic sensors to the system. The Contractor shall provide the communications for any of these additional signs or traffic sensors.
9. System Operational Performance:
   a) To ensure a prompt response to incidents involving the integrity of the PWZMS devices and changeable message signs, the Contractor shall be required to make all necessary corrections to the components of the system within 24 hours of notification by the Department.

b) If all corrections are made within this 24-hour period and the system is brought back on-line, no pay reduction (as outlined in the Method of Measurement section) will occur.
c) If the 24-hour timeframe expires and the components of the system are not fully restored to proper working order, no payment will be made from the time of initial notification until the system is brought back on-line. If the system is restored within 10 days, a pro-rated monthly payment reduction will be determined as outlined in the Method of Measurement section.
d) If the components of the PWZMS are down for more than 10 total days in a month, whether they are consecutive or cumulative, then NO payment will be made for that month. Components are the Portable Work Zone Management System Changeable Message Signs, Portable Work Zone Management System Camera with Pan Tilt Zoom (PTZ), Communications Equipment, and Portable Work Zone Management System Queue Sensors, Computer hardware and software required to place the real time information on the signs, and the project's Website. The Department reserves the right to remove the PWZMS components if it determines the system is not performing in accordance with this specification, and no additional payment shall be made.

10. Data Acquisition requirements:
a) Each PVQS sensor shall communicate with the field computers and the website to activate the appropriate PCMQ whenever the prevailing traffic speed slows to below 15 mph (or other designated speed as determined by the Engineer). Once activated, pre-programmed messages shall be automatically displayed on the PCMQ. The message content shall be as directed by the Engineer.
b) The PWZMS shall be capable of calculating and having "real time" delay information displayed on the portable PCMQ's. This "real time" delay shall be calculated and displayed on the portable PCMQ's to the nearest minute.
c) The website delay information shall be updated simultaneously with the traffic speed information displayed on the Changeable Message Signs.
d) To allow for motorist information messages of high specificity, the PWZMS shall acquire quantitative traffic data using an accurate speed measurement technique that includes the capability of detecting stopped traffic and counting traffic volume.
e) The PWZMS system's traffic sensors shall be of a type whose accuracy is not degraded by inclement weather or low visibility conditions including precipitation, fog, darkness, excessive dust, and road debris.
f) The PWZMS shall be capable of acquiring traffic data from up to 6 lanes of traffic in multiple directions, such as 6 northbound and 6 southbound.
g) The Contractor shall provide redundancy for data archiving and exchange. The Contractor shall provide Content Delivery Network (CDN) to aggregate video data streams from any PTZ camera to a centralized location to reduce bandwidth consumption from each individual PTZ camera head to end users and allow for separate controllable/ configurable streams for public and operator use.
h) The CDN shall be capable of allowing the Project staff to start and stop public feeds from the PWZMS website while not interfering with the private feeds being displayed on the website.
i) All traffic data acquired by the PWZMS including, but not limited to, calculated data fields shall be archived in a log file with time and date stamps for the duration of the

Project. During the Project, requests for archived data may be made through the Engineer to the PWZMS contractor. The Contractor shall provide this data to the Engineer within 5 days upon receipt of the original request.

j) At the end of the Project, the PWZMS Contractor shall provide the Department comprehensive Project archive data with the exception of video. This logged information shall be in a format compatible with Department requirements. The Contractor shall coordinate with the Engineer for requirements.

k) The PWZMS shall provide device outage alerts via email to the Engineer for outages greater than 15 minutes. The alerts shall be used to generate a monthly summary spreadsheet displaying outages greater than 24 hours, submitted to the Engineer. The email addresses for recipients of outage alerts shall be provided by the Engineer. Any pay reductions as per the pro-rated schedule will be calculated from the monthly outage summaries, as described in the Method of Measurement section.

l) The system shall be capable of transferring for each camera device a video data format acceptable to the Department.

m) The Contractor shall provide notification of data format changes to the Department before they take place.

n) Unique device identifiers shall be coordinated at the beginning of the Project and shall not change once the PWZMS contractor has initially defined them, unless otherwise approved by the Engineer.

11. Portable Work Zone Management System Motorist Information Message requirements:

a) The PCMQ shall be capable of providing speed, delay, length of traffic queue, travel time, stopped vehicles, and lane closure message advisories to motorists.

b) Records of all motorist information messages and travel times displayed by the PWZMS shall be submitted to the Engineer in a format compatible with Department requirements.

c) The PWZMS must have capacity to preset up to 20 different default or automatic advisory messages for each PCMQ, for a total capacity of a least 80 default and automatic messages (20 for each of the 4 PCMQ's).

d) Message Sets:

i. The upstream PCMQs within 1 1/2 miles of the work zone shall display either the following message or an alternate message approved by the Engineer:

ROAD WORK AHEAD
XX MIN THRU WORKZONE

ii. PCMQs located within the work zone will display different messages as per their location. Either the following sample message or an alternate message approved by the Engineer will be displayed:

TO EXIT XX
X MILES
X - X MIN

iii. Queue warning PCMQ's located prior to any construction activity that negatively impacts traffic flows shall display the following message or an alternate message approved by the Engineer:

STOPPED TRAFFIC XX MILES
BE PREPARED TO STOP
- or -

SLOW TRAFFIC XX MILES
USE CAUTION

e) The sequences above are a minimum requirement and can be adjusted by the Engineer at his or her discretion.
f) The PWZMS shall acquire traffic flow data and use an accurate speed calculation technique that includes the capability of detecting stopped traffic, counting traffic volume and lane occupancy.
g) The wireless cellular communications system(s) used for the Project must be reliable, dependable, and capable of functioning at all times regardless of weather, locations and cell phone usage. The Contractor shall be responsible for all communications costs, utilities, and satellite or cellular phone services needed to provide the dependable functioning PWZMS.

Approximate Location of Portable Work Zone Management System:

Figures 1 and 2 and Tables 1 and 2 are provided as a guide. Actual locations of the PWZMS equipment shall be determined in the field. The Engineer will review and approve final locations of the equipment.

FIGURE 1:

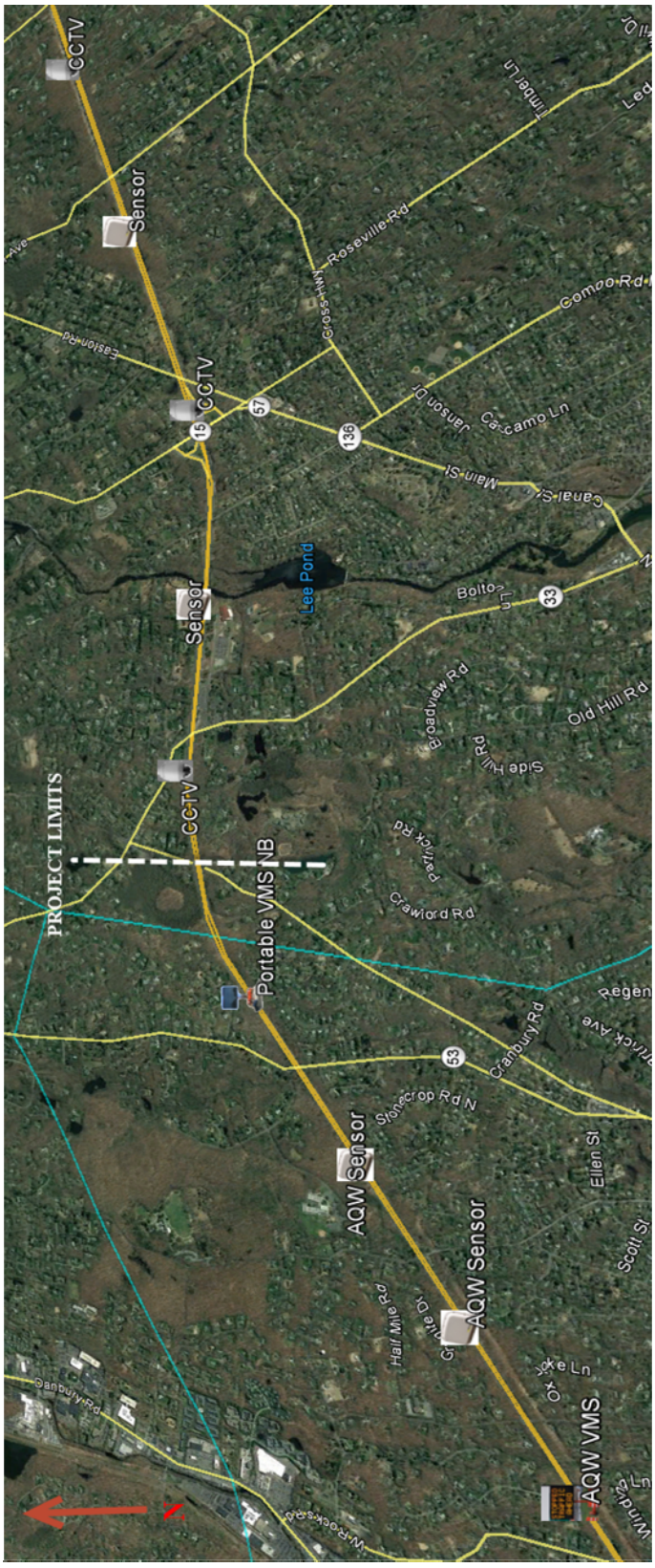
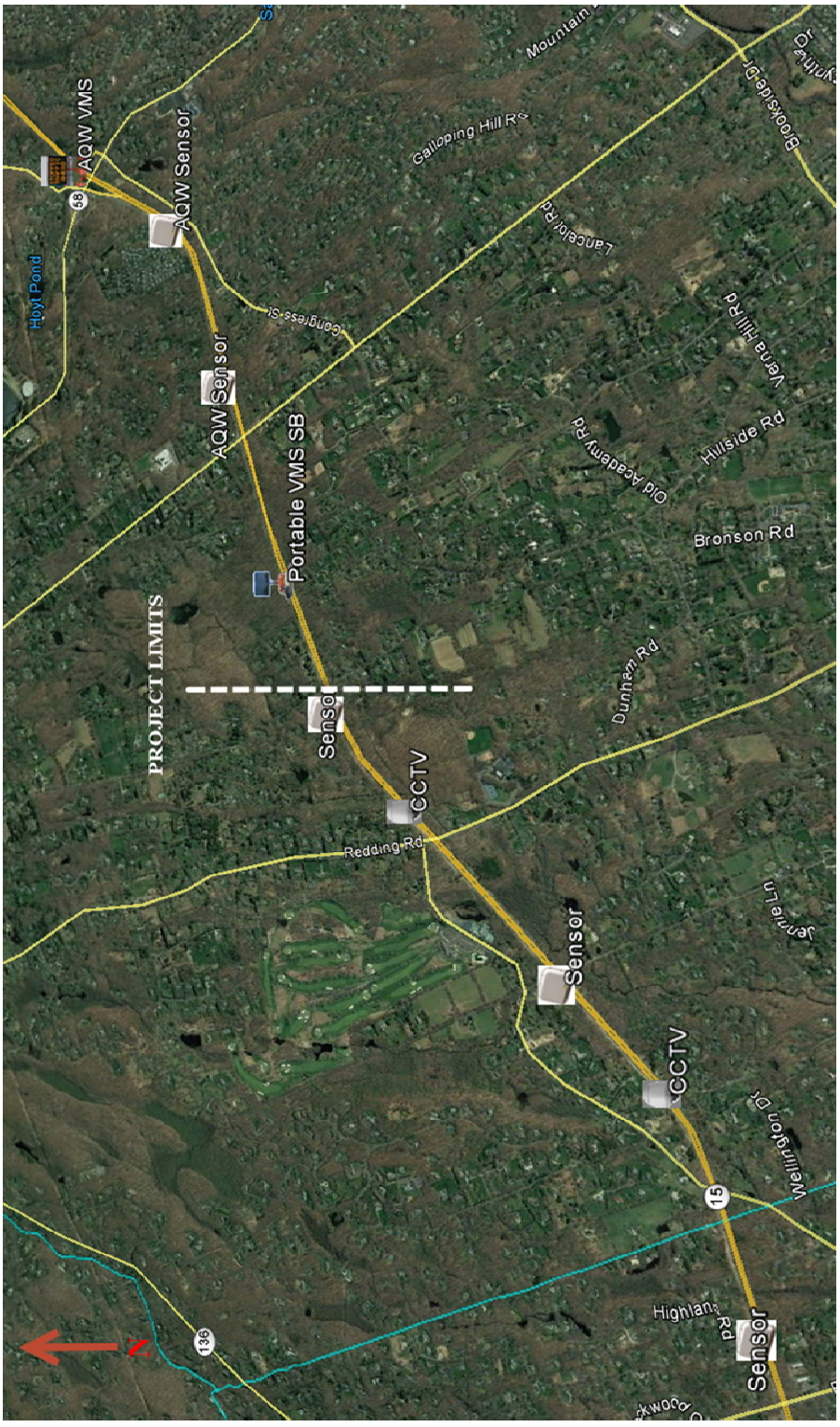

CCTV
Sensor
CCTV
Sensor
CCTV
PROJECT LIMITS
Portable VMS NB
AQW Sensor
AQW Sensor
AQW VMS
Lee Pond
Roseville Rd
Compo Rd
Main St
Bolton Ln
Old Hill Rd
Broadview Rd
Side Hill Rd
Crawford Rd
Cranbury Rd
Stonecrop Rd N
Ellen St
Scott St
Hall Mile Rd
Oxbow Ln
Timber Ln
Ca-camo Ln
Canal St
Cranbury Rd
W Rock Rd
15
57
136
33
53

FIGURE 2:


AQW VMS
AQW Sensor
Galloping Hill Rd
Lancelot Rd
Congress St
Hoyt Pond
AQW Sensor
Portable VMS SB
Old Academy Rd
Hillside Rd
Vena Hill Rd
Bronson Rd
PROJECT LIMITS
Sensor
Dunham Rd
CCTV
Redding Rd
Sensor
CCTV
Wellington Dr
Highland Rd
Sensor
68
15
136

Tables: Approximate Location of Portable Work Zone Management System Implementation for the Project Site.

Table 1				
Route	**Direction**	**Town**	**Location**	**Type of Equipment**
15	Northbound	Norwalk	East of W. Rocks Rd.	Advanced Queue Warning Portable VMS
15	Northbound	Norwalk	East of E. Rocks Rd.	Advanced Queue Warning Portable Sensor
15	Northbound	Norwalk	East of Grumman Ave.	Advanced Queue Warning Portable Sensor
15	Northbound	Norwalk	North of Chestnut Hill Rd.	Portable VMS/ Sensor
15	Southbound	Westport	West of Wilton Rd.	Portable CCTV/ Sensor
15	Southbound	Westport	West of Clinton Ave.	Portable Sensor
15	Northbound	Westport	East of Weston Rd.	Portable CCTV/ Sensor
15	Southbound	Westport	West of North Ave.	Portable Sensor
15	Southbound	Westport	West of Bayberry Lane	Portable CCTV/ Sensor

Table 2				
Route	**Direction**	**Town**	**Location**	**Type of Equipment**
15	Northbound	Westport	East of Bayberry Lane	Portable Sensor
15	Northbound	Fairfield	East of Cross Hwy.	Portable CCTV/ Sensor
15	Southbound	Fairfield	South of Merwins Ln.	Portable Sensor
15	Northbound	Fairfield	North of Redding Rd.	Portable CCTV/ Sensor
15	Southbound	Fairfield	West of Congress St.	Portable Sensor
15	Southbound	Fairfield	East of Hillside Rd.	Portable VMS/ Sensor
15	Southbound	Fairfield	East of Burr St.	Advanced Queue Warning Portable Sensor
15	Southbound	Fairfield	South of Black Rock Turnpike	Advanced Queue Warning Portable Sensor
15	Southbound	Fairfield	North of Black Rock Turnpike	Advanced Queue Warning Portable VMS

Trailer Relocation Operations:

1. The Contractor shall relocate the PWZMS trailers as agreed between the Contractor and the Engineer.
2. The Contractor shall reconfigure the PWZMS after each component relocation. The PVQS and the camera with pan-tilt-zoom (PTZ) shall be configured to monitor travel lanes at the relocation site.
3. The Contractor shall update the website with the relocation sites of the PWZMS. The update shall occur within 3 weekdays of the relocation. The Website shall show the new location of the PWZMSs upon completion of the update.

Method of Measurement:

1. The Portable Work Zone Management System Deployment will be measured as a Contract lump sum item.
2. The Portable Work Zone Management System Changeable Message Sign/Queue Sensor Trailer (PCMQ), Portable Work Zone Management System Video Camera/Queue Sensor Trailer (PVQS), and Portable Work Zone Management System Queue Trailer/Sensor (PQT) items will be measured for payment by the month or fraction of a month as follows:
   a) The items will be measured based on uninterrupted operation of all queue trailer/sensors, cameras with pan-tilt-zoom, changeable message signs, solar panels, batteries, website, operations, cellular communications, programming, and integration.
   b) The following pro-rated reduction of the monthly payment will be computed if the monthly summary spreadsheet of outages greater than 24 hours indicates interruption of service has occurred:

1 day = 5% pay reduction	6 days = 30% pay reduction
2 days = 7% pay reduction	7 days = 35% pay reduction
3 days = 10% pay reduction	8 days = 40% pay reduction
4 days = 20% pay reduction	9 days = 50% pay reduction
5 days = 25% pay reduction	10 days = 75% pay reduction

   c) If the components of the PWZMS are down for more than 10 total days in a month, whether they are consecutive or cumulative, then NO payment will be made for that month.
3. PQT, PQVS, and PCMQ will be measured for payment on a per unit basis for each month that the piece of equipment is in use, and as follows:
   a) Measurement will begin from the date each unit is fully operational, as determined by the Engineer, to the date it is released back to the Contractor.
   b) The Engineer will compute periods of less than 1 month at the rate of 1/30 of a month for each day of use.
4. The Portable Work Zone Management System Trailer Relocation item will be measured for payment each time a PQT, PVQS, or PCMQ is relocated from an existing location to another location, as approved or directed by the Engineer.

Basis of Payment:

1. Payment for accepted PWZMS installation will be at the Contract lump sum price for "Portable Work Zone Management System Deployment" which shall include submittals, component delivery, system set up, and all materials, equipment, tools and labor incidental thereto. The Contractor shall comply with the requirements stated in the System Performance section herein.
2. Payment for uninterrupted PWZMS operations as specified will be at the Contract unit price per month for "Portable Work Zone Management System Operations" which price shall include website operations, cellular communications, programming, system integration, service, maintenance, repair, and all materials, equipment, tools and labor incidental thereto.
3. Payment for accepted trailer-mounted components will be at the Contract unit price per month for each "Portable Work Zone Management System Queue Trailer/Sensor (PQT)," "Portable Work Zone Management System Mobile Video Camera/Queue Sensor Trailer (PVQS)" and "Portable Work Zone Management System Changeable Message Sign/Queue

Sensor Trailer (PCMQ)" which price shall include queue trailer and sensor, camera/queue sensors and trailers, changeable message signs and trailers, processed rock, temporary license plates, solar panels, batteries, website and cellular communication connections, service, maintenance, repair, replacement, removal, travel, programming, integration, and all materials, equipment, tools and labor incidental thereto.

4. Payment for approved relocation of PQT and PCMQ units will be at the Contract unit price for each "Portable Work Zone Management System Trailer Relocation" which price shall include processed rock, website revisions, and all materials, equipment, tools and labor incidental thereto.

The pay unit is each that will be paid on a monthly basis for the Portable Work Zone Management System Changeable Message Sign/Queue Sensor Trailer (PCMQ) and the Portable Work Zone Management System Video Camera/Queue Sensor Trailer (PVQS).

Pay Item	Pay Unit
Portable Work Zone Management System Deployment	l.s.
Portable Work Zone Management System Operations	mo.
Portable Work Zone Management System Queue Trailer/Sensor (PQT)	mo.
Portable Work Zone Management System Changeable Message Sign/Queue Sensor Trailer (PCMQ)	ea.
Portable Work Zone Management System Video Camera/Queue Sensor Trailer (PVQS)	ea.
Portable Work Zone Management System Trailer Relocation	ea.

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

m e m o r a n d u m

***Subject*: Flood Management General Certification**
Project No.0158-207
F.A.P. No. – 0015(121)
Rehabilitation of Bridge No.00728 –
Merritt Parkway over Saugatuck River
Town of Westport

***Date*:** November 9, 2016

***to*:** Mr. Michael E. Masayda
Trans. Principal Engineer
Bureau of Engineering and Highway Operations

***from*:** Mary E. Baker Mary E. Baker, P.E. 2016.11.09 09:58:03-05'00'
Trans. Principal Engineer
Bureau of Engineering and Construction

Please review this request for Flood Management General Certification and indicate your concurrence below.

Certification (to be completed by designer)

I have read the Flood Management General Certification and the descriptions for the approved DOT minor activities. This project qualifies for the Flood Management General Certification under:

( ) Minor Safety Improvements and Streetscape Projects
( ) Roadway Repaving, Maintenance & Underground Utilities
( ) Minor Stormwater Drainage Improvements
( ) Removal of Sediment or Debris from a Floodplain
( ) Wetland Restoration Creation or Enhancement
( ) Scour Repairs at Structures; (*Must acquire DEEP Fisheries Concurrence to be eligible*)
( ) Guide Rail Installation
( ) Deck and Superstructure Replacements
(X) Minor Bridge Repairs and Access
( ) Fisheries Enhancements
( ) Surveying and Testing
( ) Bicycle / Pedestrian, Multi Use Trails and Enhancement Projects

The following required documentation is attached in support of this certification:

- Project description
- Location plan
- Description of Floodplain involvement and how project qualifies for general certification
- 8-1/2" by 11" excerpt copy of the FEMA Flood Insurance Rate Map (FIRM) and Floodway Boundary Map (if applicable)
- Design plans, (dated 10/25/2016) with FEMA floodplain and floodway boundaries plotted, cross sections and profiles, as necessary, that clearly depict the floodplain involvement
- FEMA 100-year flood elevation plotted on elevation view (for structures)

Print Name **David Gruttadauria, PE**	Title **Transportation Engineer III**
Signature David Gruttadauria	Date 11/09/2016

Concurrence (to be completed by Hydraulics and Drainage)

Based on the documentation submitted, I hereby concur that the project qualifies for Flood Management General Certification.

If there are any changes to the proposed activities within the floodplain or floodway, the project must be re-submitted for review and approval.

Signature Michael Masayda, P.E. 2016.11.10 08:48:13 -05'00'	Date November 10, 2016

cc: Theodore Nezames
Environmental Planning File
DEEP Flood Management Cert. File
Hydraulics and Drainage File

Rev 03/15

June 1, 2016

Mr. Christopher Bonsignore, P.E.
Principal Engineer
Environmental Compliance Section
Bureau of Engineering and Highway Operations
State of Connecticut Department of Transportation
2800 Berlin Turnpike, P.O. Box 317546
Newington, CT 06131-7546

Attention: Judith Nemecek, P.E. / Robert Reilly

Subject: On-Call Asbestos, Lead, Air Quality & Demolition Compliance
Agreement No. 04.27-01(15)
HazMat Inspection – Nine (9) Bridges, Route 15, Westport/Fairfield, CT **(Revised)**
ConnDOT Assignment No. 514-5271
ConnDOT Project No. 158-211
TRC Project No. 222165.5271.00710

Dear Mr. Bonsignore:

TRC performed a limited survey for hazardous building materials associated with 9 bridges along Route 15 in Westport/Fairfield, Connecticut. Results of the survey identified the following on the bridge surfaces at the following Sites:

- There was no site labeled as Site No. 3.
- Detectable levels of lead in paint were confirmed present at Site No. 2 (concrete), Site No. 4 (metal railing, steel beams, concrete), Site No. 5 (concrete), Site No. 8 (concrete), Site No. 9 (concrete) & Site No. 10 (metal railing).
- Lead paint is presently presumed on the structural steel/metal bridge components at Site No. 6 (not safely accessible).
- There were no painted surfaces at Site No. 1 & Site No. 11, therefore there is no lead paint.
- Projected paint waste debris was characterized as EPA/CTDEEP hazardous waste at Site No. 4 (structural steel) & Site No. 10 (railings).
- Projected paint waste debris was characterized as non-hazardous, non-RCRA waste at Site No.2 (concrete), Site No. 4 (railings/concrete), Site No. 5 (concrete), Site No. 8 (concrete) & Site No. 9 (concrete).
- Any paint waste debris generated from the structural steel/metal bridge components at Site No. 6 is presently presumed as EPA RCRA/CTDEEP hazardous waste pending actual characterization testing when accessible.
- Grey hard caulking at cracks of abutment walls and precast stone trim & vertical black tar expansion joints on bridge side walls (top side of the bridge) were found to contain asbestos (Site No. 1).
- Grey pliable caulk (Site No. 2), grey thin brittle caulk (Site No. 4), grey thick pliable caulk (Site No. 4), dark grey hard caulk (Site No. 10) & tan hard caulk (Site No. 10) were found to contain no asbestos.
- CTDEEP Special Waste (tire) was identified at base of the abutment of Site No. 5.
- No pigeon/bird guano accumulations were identified at any of the Sites.

Laboratory data, Site No. information and photos are attached.

If you have any questions, please call TRC at (860) 298-9692.

Very Truly Yours,

TRC

Erik R. Plimpton, P.E., CHMM, CMC
Vice President - Program Manager

Edmund J. Burke, P.E.
Engineer-in-Charge

Lead Based Paint Measurement Summary Table

Device(s):	Niton XLP301-A (Serial #24792) X Ray Fluorescence (XRF) Spectrum Analyzer
Site:	CT DOT - Nine (9) Bridges, Westport/Fairfield, CT
Project # :	222165.5271.0710
Date(s):	2/9/16 & 2/10/16
Inspector:	Mike Stewart (Lead Inspector/RA #002115)

Number	Interior/ Exterior	Bridge No.	Site No.	Structure	Feature	Material	Color	Condition	Reading (mg/cm2)	Precision (mg/cm2)	Depth Index	Duration (sec)	Date/Time
1			**Self-Calibration**									209.5	2/9/2016 11:33
2			**0.3 calibration**						0.3	0.1	1.1	4.9	2/9/2016 12:02
3			**0.7 calibration**						0.7	0.1	1.0	7.7	2/9/2016 12:03
4			**1.6 calibration**						1.4	0.1	1.1	10.2	2/9/2016 12:03
5		Bridge 05763	Site No. 2	Wall		Concrete	White	Defective	0.0	0.0	3.7	6.0	2/9/2016 12:07
6		Bridge 05763	Site No. 2	Wall		Concrete	White	Defective	0.0	0.0	1.0	7.7	2/9/2016 12:07
7		Bridge 05763	Site No. 2	Wall		Concrete	White	Defective	0.0	0.0	2.5	4.0	2/9/2016 12:08
8		Bridge 05763	Site No. 2	Wall		Concrete	White	Defective	0.0	0.0	1.0	8.1	2/9/2016 12:09
9		Bridge 05763	Site No. 2	Wall		Concrete	White	Defective	0.0	0.0	2.5	6.4	2/9/2016 12:09
10		Bridge 00729	Site No. 4	Wall	Top side	Concrete	White	Defective	0.0	0.0	1.0	1.7	2/9/2016 12:30
11		Bridge 00729	Site No. 4	Wall	Top side	Concrete	White	Defective	0.0	0.0	2.8	6.9	2/9/2016 12:31
12		Bridge 00729	Site No. 4	Wall	Top side	Concrete	White	Defective	0.0	0.0	1.0	7.3	2/9/2016 12:32
13		Bridge 00729	Site No. 4	Railing		Metal	Grey	Intact	**0.1**	**0.1**	5.7	3.6	2/9/2016 12:33
14		Bridge 00729	Site No. 4	Railing		Metal	Grey	Intact	**0.1**	**0.1**	4.3	9.3	2/9/2016 12:34
15		Bridge 00729	Site No. 4	Railing		Metal	Grey	Intact	**0.2**	**0.1**	3.3	8.4	2/9/2016 12:35
16		Bridge 00729	Site No. 4	Railing		Metal	Grey	Intact	**0.1**	**0.1**	3.1	9.3	2/9/2016 12:35
17		Bridge 00729	Site No. 4	Beam		Metal	Green	Defective	**11.6**	**6.4**	2.1	1.8	2/9/2016 12:47
18		Bridge 00729	Site No. 4	Beam		Metal	Green	Defective	**14.0**	**6.4**	2.2	2.0	2/9/2016 12:47
19		Bridge 00730	Site No. 5	Wall		Concrete	White	Defective	0.0	0.0	1.0	2.4	2/9/2016 13:25
20		Bridge 00730	Site No. 5	Wall		Concrete	White	Defective	0.0	0.0	3.3	10.4	2/9/2016 13:25
21		Bridge 00730	Site No. 5	Wall		Concrete	White	Defective	0.0	0.0	2.5	5.5	2/9/2016 13:26
22		Bridge 00730	Site No. 5	Wall		Concrete	White	Defective	0.0	0.0	1.6	4.4	2/9/2016 13:27
23		Bridge 00730	Site No. 5	Wall		Concrete	White	Defective	0.0	0.0	1.6	5.3	2/9/2016 13:27
24			**0.3 calibration**						0.3	0.1	1.0	5.5	2/9/2016 13:34
25			**0.7 calibration**						0.7	0.1	1.0	6.2	2/9/2016 13:34
26			**1.6 calibration**						1.4	0.1	1.1	7.1	2/9/2016 13:35
27			**Self-Calibration**									214.8	2/10/2016 11:05
28			**0.3 calibration**						0.6	0.1	1.0	3.6	2/10/2016 11:07
29			**1.6 calibration**						1.6	0.1	1.2	10.5	2/10/2016 11:08
30			**3.5 calibration**						3.7	0.2	1.3	10.6	2/10/2016 11:08
31		Bridge 00733	Site No. 7	Wall		Concrete	Brown	Intact	0.0	0.0	1.3	7.7	2/10/2016 11:13
32		Bridge 00733	Site No. 7	Wall		Concrete	Tan/Beige	Intact	0.0	0.0	1.2	5.5	2/10/2016 11:13
33		Bridge 00733	Site No. 7	Wall		Concrete	White	Intact	0.0	0.0	1.0	5.6	2/10/2016 11:15
34		Bridge 00733	Site No. 7	Wall		Concrete	White	Intact	0.0	0.0	1.0	5.3	2/10/2016 11:16
35		Bridge 00733	Site No. 7	Wall		Concrete	Tan/Beige	Intact	0.0	0.0	1.3	2.0	2/10/2016 11:16
36		Bridge 00733	Site No. 7	Wall		Concrete	Tan/Beige	Intact	0.0	0.0	2.2	6.7	2/10/2016 11:17
37		Bridge 00733	Site No. 7	Wall		Concrete	Brown	Intact	0.0	0.1	3.1	2.7	2/10/2016 11:17
38		Bridge 00733	Site No. 7	Wall		Concrete	Brown	Intact	0.0	0.0	1.0	6.0	2/10/2016 11:18
39		Bridge 00734	Site No. 8	Wall		Concrete	Brown	Intact	0.0	0.0	3.0	6.6	2/10/2016 11:31
40		Bridge 00734	Site No. 8	Wall		Concrete	Brown	Intact	0.0	0.0	1.0	4.7	2/10/2016 11:31
41		Bridge 00735	Site No. 9	Railing		Metal	Grey	Intact	**1.9**	**0.3**	1.4	3.9	2/10/2016 11:59
42		Bridge 00735	Site No. 9	Railing		Metal	Grey	Intact	**3.8**	**1.8**	1.4	3.5	2/10/2016 11:59

Lead paint includes paint found to contain **any detectable** amount of lead
by Atomic Absorption Spectrophotometry (AAS) or X-Ray Fluorescence (XRF).

Lead Based Paint Measurement Summary Table

Device(s):	**Niton XLP301-A (Serial #24792) X Ray Fluorescence (XRF) Spectrum Analyzer**
Site:	**CT DOT - Nine (9) Bridges, Westport/Fairfield, CT**
Project # :	**222165.5271.0710**
Date(s):	**2/9/16 & 2/10/16**
Inspector:	**Mike Stewart (Lead Inspector/RA #002115)**

Number	Interior/ Exterior	Bridge No.	Site No.	Structure	Feature	Material	Color	Condition	Reading (mg/cm2)	Precision (mg/cm2)	Depth Index	Duration (sec)	Date/Time
43		Bridge 00735	Site No. 9	Railing		Metal	Grey	Intact	**1.3**	**0.2**	1.3	4.7	2/10/2016 12:00
44		Bridge 00735	Site No. 9	Railing		Metal	Grey	Intact	**1.1**	**0.1**	1.3	12.9	2/10/2016 12:01
45			**0.7 calibration**						0.6	0.1	1.0	4.7	2/10/2016 12:42
46			**1.6 calibration**						1.4	0.1	1.1	10.2	2/10/2016 12:42
47			**3.5 calibration**						3.2	0.2	1.2	20.2	2/10/2016 12:44

Lead paint includes paint found to contain **any detectable** amount of lead
by Atomic Absorption Spectrophotometry (AAS) or X-Ray Fluorescence (XRF).

80 Lupes Drive
Stratford, CT 06615

COMPLETE ENVIRONMENTAL TESTING, INC.

Tel: (203) 377-9984
Fax: (203) 377-9952
e-mail: cetl@cetlabs.com

Client: Mr. Michael Stewart
TRC Environmental Consultants
21 Griffin Rd., North
Windsor, CT 06095

Analytical Report

CET# 6020236

Report Date:February 19, 2016
Project: CTDOT
Project Number: Westport / Fairfield Bridges
PO Number: 222165.5271.0710

Connecticut Laboratory Certificate: PH 0116
Massachusetts laboratory Certificate: M-CT903

NELAP ACCREDITED LABORATORY

New York Certification: 11982
Rhode Island Certification: 199

SAMPLE SUMMARY

The sample(s) were received at 25.1°C.

This report contains analytical data associated with following samples only.

Sample ID	Laboratory ID	Matrix	Collection Date/Time	Receipt Date
1 Bridge 5763	6020236-01	Paint Chip	2/09/2016 11:07	02/12/2016
2 Bridge 729 Metal Rail	6020236-02	Paint Chip	2/09/2016 12:21	02/12/2016
3 Bridge Concrete Wall	6020236-03	Solid	2/09/2016 12:24	02/12/2016
4 Bridge 730	6020236-04	Paint Chip	2/09/2016 14:02	02/12/2016
5 Bridge 733	6020236-05	Paint Chip	2/10/2016 10:13	02/12/2016
6 Bridge 733	6020236-06	Paint Chip	2/10/2016 10:16	02/12/2016
7 Bridge 733	6020236-07	Paint Chip	2/10/2016 10:20	02/12/2016
8 Bridge 734	6020236-08	Paint Chip	2/10/2016 11:54	02/12/2016

Analyte: Total Lead [EPA 6010C] **Analyst: SS**

Prep: EPA 3050B **Matrix: Solid**

Laboratory ID	Client Sample ID	Result	RL	Units	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
6020236-03	3 Bridge Concrete Wall	11	2.0	mg/kg	1	B6B1915	02/19/2016	02/19/2016 12:26	

Analyte: Total Lead [EPA 6010C] **Analyst: SS**

Prep: EPA 3050B **Matrix: Paint Chip**

Laboratory ID	Client Sample ID	Result	RL	Units	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
6020236-01	1 Bridge 5763	ND	0.10	%	1	B6B1709	02/17/2016	02/18/2016 15:35	
6020236-02	2 Bridge 729 Metal Rail	0.20	0.10	%	1	B6B1709	02/17/2016	02/18/2016 15:39	
6020236-04	4 Bridge 730	ND	0.10	%	1	B6B1709	02/17/2016	02/18/2016 15:44	
6020236-05	5 Bridge 733	ND	0.10	%	1	B6B1709	02/17/2016	02/18/2016 15:48	
6020236-06	6 Bridge 733	ND	0.10	%	1	B6B1709	02/17/2016	02/18/2016 15:52	
6020236-07	7 Bridge 733	ND	0.10	%	1	B6B1709	02/17/2016	02/18/2016 16:05	
6020236-08	8 Bridge 734	ND	0.10	%	1	B6B1709	02/17/2016	02/18/2016 16:10	

Questions related to this report should be directed to David Ditta, Timothy Fusco, or Robert Blake at 203-377-9984.

Sincerely,

David Ditta
Laboratory Director

Report Comments:

Sample Result Flags:
E- The result is estimated, above the calibration range.
H- The surrogate recovery is above the control limits.
L- The surrogate recovery is below the control limits.
B- The compound was detected in the laboratory blank.
P- The Relative Percent Difference (RPD) of dual column analyses exceeds 40%.
D- The RPD between the sample and the sample duplicate is high. Sample Homogenity may be a problem.
+- The Surrogate was diluted out.
*C1- The Continuing Calibration did not meet method specifications and was biased low for this analyte. Increased uncertainty is associated with the reported value which is likely to be biased low.
*C2- The Continuing Calibration did not meet method specifications and was biased high for this analyte. Increased uncertainty is associated with the reported value which is likely to be biased high.
*F1- The Laboratory Control Sample recovery is outside of control limits. Reported value for this analyte is likely to be biased on the low side.
*F2- The Laboratory Control Sample recovery is outside of control limits. Reported value for this analyte is likely to be biased on the high side.
I- The Analyte exceeds %RSD limits for the Initial Calibration. This is a non-directional bias.

All results met standard operating procedures unless indicated by a data qualifier next to a sample result, or a narration in the QC report.

Complete Environmental Testing is only responsible for the certified testing and is not directly responsible for the integrity of the sample before laboratory receipt.

ND is None Detected at the specified detection limit
All analyses were performed in house unless a Reference Laboratory is listed.
Samples will be disposed of 30 days after the report date.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 6010C in Solid	
Lead	CT

Complete Environmental Testing operates under the following certifications and accreditations:

Code	Description	Number	Expires
CT	Connecticut Public Health	PH0116	09/30/2016

6020236

TRC

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

Edition: November 2013
Supersede Previous Edition

TCLP CHAIN OF CUSTODY

LAB ID #.

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
22165.5221.0710	ConnDOT – Westport/Fairfield Bridges		24hr / 48hr / 3day / 5day (5day circled)
			24hr / 48hr / 3day / 5day

INSPECTOR: (SIGNATURE)	(PRINTED)
Michael Stewart	Mike Stewart

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	RCRA Pb	RCRA Pb, AS, CR, CD	8 RCRA Metals	TCLP Pb	SPLP Pb	Total Pb	MATERIAL	SITE
1	2/9/16	11:10		✓	Bridge 5763						✓	Paint on concrete	2
2	"	12:21		✓	Bridge 729 – Metal Rail						✓	Paint on metal rail	4
3	"	12:24		✓	" – Concrete Wall						✓	Paint on concrete	4
4	"	14:02		✓	Bridge 730						✓	Paint on concrete	5
5	2/10/16	10:13		✓	Bridge 733						✓	Dark Brown Paint on concrete	7
6	"	10:16		✓	"						✓	Beige Paint on concrete	7
7	"	10:20		✓	"						✓	White Paint on concrete	7
8	"	11:54			Bridge 734						✓	Paint on concrete	8

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
Michael Stewart	2/11/16	2-12-16 1125		2-12-16	
(Printed) Mike Stewart	Time: 14:30	(Printed)	(Printed)	Time: 1350	(Printed)
					Page 1 of 1

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158-211 & 158-207

80 Lupes Drive
Stratford, CT 06615

COMPLETE ENVIRONMENTAL TESTING, INC.

Tel: (203) 377-9984
Fax: (203) 377-9952
e-mail: cetl@cetlabs.com

Client: Mr. Michael Stewart
TRC Environmental Consultants
21 Griffin Rd., North
Windsor, CT 06095

Analytical Report

CET# 6020237

Report Date:February 17, 2016
Project: CTDOT
Project Number: Westport / Fairfield Bridges
PO Number: 222165.5271.0710

Connecticut Laboratory Certificate: PH 0116
Massachusetts laboratory Certificate: M-CT903

New York Certification: 11982
Rhode Island Certification: 199

SAMPLE SUMMARY

The sample(s) were received at 25.1°C.

This report contains analytical data associated with following samples only.

Sample ID	Laboratory ID	Matrix	Collection Date/Time	Receipt Date
1 Bridge 5763	6020237-01	Paint Chip	2/09/2016 11:07	02/12/2016
2 Bridge 729 Beams	6020237-02	Paint Chip	2/09/2016 12:13	02/12/2016
3 Bridge 729 Rail	6020237-03	Paint Chip	2/09/2016 12:21	02/12/2016
4 Bridge 729 Concrete	6020237-04	Solid	2/09/2016 12:24	02/12/2016
5 Bridge 730	6020237-05	Paint Chip	2/09/2016 14:02	02/12/2016
6 Bridge 733	6020237-06	Paint Chip	2/10/2016 10:23	02/12/2016
7 Bridge 734	6020237-07	Paint Chip	2/10/2016 11:54	02/12/2016
8 Bridge 735	6020237-08	Paint Chip	2/10/2016 13:38	02/12/2016

Analyte: TCLP Lead [EPA 6010C] **Analyst: SS**

Prep: EPA 3005A-1311 **Matrix: Extract**

Laboratory ID	Client Sample ID	Result	RL	Units	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
6020237-01	1 Bridge 5763 Site 2	**0.42**	0.013	mg/L	1	B6B1625	02/16/2016	02/16/2016 16:16	
6020237-02	2 Bridge 729 Beams Site 4	**300**	0.013	mg/L	1	B6B1625	02/16/2016	02/16/2016 16:21	
6020237-03	3 Bridge 729 Rail Site 4	**1.2**	0.013	mg/L	1	B6B1625	02/16/2016	02/16/2016 16:26	
6020237-04	4 Bridge 729 Concrete Site 4	**0.044**	0.013	mg/L	1	B6B1625	02/16/2016	02/16/2016 16:30	
6020237-05	5 Bridge 730 Site 5	**0.019**	0.013	mg/L	1	B6B1625	02/16/2016	02/16/2016 16:49	
6020237-06	6 Bridge 733 Site 7	**0.028**	0.013	mg/L	1	B6B1625	02/16/2016	02/16/2016 16:53	
6020237-07	7 Bridge 734 Site 8	**0.14**	0.013	mg/L	1	B6B1625	02/16/2016	02/16/2016 17:06	
6020237-08	8 Bridge 735 Site 9	**27**	0.013	mg/L	1	B6B1625	02/16/2016	02/16/2016 17:11	

Questions related to this report should be directed to David Ditta, Timothy Fusco, or Robert Blake at 203-377-9984.

Sincerely,

David Ditta
Laboratory Director

Report Comments:

Sample Result Flags:
E- The result is estimated, above the calibration range.
H- The surrogate recovery is above the control limits.
L- The surrogate recovery is below the control limits.
B- The compound was detected in the laboratory blank.
P- The Relative Percent Difference (RPD) of dual column analyses exceeds 40%.
D- The RPD between the sample and the sample duplicate is high. Sample Homogenity may be a problem.
+- The Surrogate was diluted out.
*C1- The Continuing Calibration did not meet method specifications and was biased low for this analyte. Increased uncertainty is associated with the reported value which is likely to be biased low.
*C2- The Continuing Calibration did not meet method specifications and was biased high for this analyte. Increased uncertainty is associated with the reported value which is likely to be biased high.
*F1- The Laboratory Control Sample recovery is outside of control limits. Reported value for this analyte is likely to be biased on the low side.
*F2- The Laboratory Control Sample recovery is outside of control limits. Reported value for this analyte is likely to be biased on the high side.
I- The Analyte exceeds %RSD limits for the Initial Calibration. This is a non-directional bias.

All results met standard operating procedures unless indicated by a data qualifier next to a sample result, or a narration in the QC report.

Complete Environmental Testing is only responsible for the certified testing and is not directly responsible for the integrity of the sample before laboratory receipt.

ND is None Detected at the specified detection limit
All analyses were performed in house unless a Reference Laboratory is listed.
Samples will be disposed of 30 days after the report date.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 6010C in Soil	
Lead	CT,NY

Complete Environmental Testing operates under the following certifications and accreditations:

Code	Description	Number	Expires
CT	Connecticut Public Health	PH0116	09/30/2016
NY	New York Certification (NELAC)	11982	04/01/2016

6020237

TRC
21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

Edition: November 2013
Supersede Previous Edition

TCLP CHAIN OF CUSTODY

LAB ID #.

PROJECT NUMBER	PROJECT NAME
22165.5221.0710	ConnDOT - Westport/Fairfield Bridges

PARAMETERS

TURNAROUND TIME: 24hr | 48hr | 3day | 5day (5day circled)

INSPECTOR: (SIGNATURE)	(PRINTED)
Mike Stewart	Mike Stewart

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	RCRA Pb	RCRA Pb, AS, CR, CD	8 RCRA Metals	TCLP Pb	SPLP Pb		MATERIAL	
1	2/9/16	11:07	✓		Bridge 5763				✓			Paint on concrete	2
2	"	12:13	✓		Bridge 729 - Beams				✓			Paint on Beams	4
3	"	12:21	✓		" - Rail				✓			Paint on metal rail	4
4	"	12:24	✓		" - Concrete				✓			Paint on concrete	4
5	"	14:02	✓		Bridge 730				✓			Paint on concrete	5
6	2/10/16	10:23	✓		Bridge 733				✓			Paint on concrete	7
7	"	11:54	✓		Bridge 734				✓			Paint on concrete	9
8	"	13:38	✓		Bridge 735				✓			Paint on metal rails	9

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
Mike Stewart	2/11/16	2-12-16 1630	2-12-16	1850	
(Printed) Mike Stewart	Time: 1430	(Printed) Robert Bergamini	(Printed) Robert Bergamini	Time:	(Printed)

TEMP IN 25.1°

Page 1 of 1

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ADDENDUM NO. 2

TRC

Edition: October 2009
Supersede Previous Edition

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. 47530

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
222165.5271.0710	(CTDOT) Route 15 - Westport & Fairfield Bridge Inspections		PLM: 8hr 24hr X 48hr 3day TEM: 24hr X 48hr 3day 5day
SIGNATURE	INSPECTOR		
	Robert Belding		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM EPA 600/R93/116 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
1	2/9/16	1000		X	Bridge 0726	X					Gray Hard Caulk (C1-726)
2	2/9/16	1015		X	Bridge 0726					X	Gray Hard Caulk (C1-726)
3	2/9/16	1025		X	Bridge 0726	X					Black Tar Expansion Joint (T1)
4	2/9/16	1035		X	Bridge 0726					X	Black Tar Expansion Joint (T1)
5	2/9/16	1105		X	Bridge 5763	X					Gray Pliable Caulk (C1-5723)
6	2/9/16	1120		X	Bridge 5763					X	Gray Pliable Caulk (C1-5723)
7	2/9/16	1200		X	Bridge 0729	X					Gray Thin Brittle Caulk (C1-729)
8	2/9/16	1202		X	Bridge 0729					X	Gray Thin Brittle Caulk (C1-729)
9	2/9/16	1235		X	Bridge 0729	X					Gray Thick Pliable Caulk (C2-729)
10	2/9/16	1240		X	Bridge 0729					X	Gray Thick Pliable Caulk (C2-729)
11	2/9/16	1155		X	Bridge 0735	X					Dark Gray Hard Caulk (C1-735)

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	2/11/16	2/11/16			
(Printed) Robert Belding	Time: 1430	(Printed) 1600 W Williamson	(Printed)	Time:	(Printed)

Remarks:

Condition of Samples:
Acceptable: Yes ✓ No
Comments:

158-211 & 158-207

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ADDENDUM NO. 2

TRC

Edition: October 2009
Supersede Previous Edition

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

LAB ID #. 47530

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
222165.5271.0710	(CTDOT) Route 15 - Westport & Fairfield Bridge Inspections		PLM: [ ] 8hr [ ] 24hr [X] 48hr [ ] 3day TEM: [ ] 24hr [X] 48hr [ ] 3day [ ] 5day
SIGNATURE	INSPECTOR		
	Robert Belding		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM EPA 600/R93/116 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
12	2/9/16	1200		X	Bridge 0735					X	Dark Gray Hard Caulk (C1-735)
13	2/9/16	1135		X	Bridge 0735	X					Tan Hard Caulk (C2-735)
14	2/9/16	1145		X	Bridge 0735					X	Tan Hard Caulk (C2-735)

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	2/11/16	2/11/16			
(Printed) Robert Belding	Time: 1430	(Printed) Williamson 1600	(Printed)	Time:	(Printed)

Remarks:

Condition of Samples:
Acceptable: Yes ✓ No
Comments:

Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

TRC
Results you can rely on

BULK ASBESTOS ANALYSIS REPORT

CLIENT: CT Department of Transportation

Lab Log #: 0047530
Project #: 222165.5271.0710
Date Received: 02/11/2016
Date Analyzed: 02/12/2016

Site: Route 15- Westport & Fairfield Bridge Inspection

POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116

Sample No.	Color	Homogenous	Multi-Layered	Layer No.	Other Matrix Materials		Asbestos %	Asbestos Type
1	Grey	Yes	No	--	---		5%	Chrysotile
2	--	--	--	--	--		NA/PS	--
3	Grey	Yes	No	--	30%	cellulose	Trace	Chrysotile
4	Grey	Yes	No	--	30%	cellulose	Trace	Chrysotile
5	Grey	Yes	No	--	---		ND	None
6	Grey	Yes	No	--	---		ND	None
7	Grey	Yes	No	--	---		ND	None
8	Grey	Yes	No	--	---		ND	None
9	Grey	Yes	No	--	---		ND	None
10	Grey	Yes	No	--	---		ND	None
11	Dark Grey	Yes	No	--	---		ND	None
12	Dark Grey	Yes	No	--	---		ND	None
13	Tan	Yes	No	--	---		ND	None
14	Tan	Yes	No	--	---		ND	None

Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

TRC
Results you can rely on

POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116

Sample No.	Color	Homogenous	Multi-Layered	Layer No.	Other Matrix Materials	Asbestos %	Asbestos Type

Reporting limit- asbestos present at 1%
ND - asbestos was not detected
Trace - asbestos was observed at level of less than 1%
NA/PS - Not Analyzed / Positive Stop
SNA- Sample Not Analyzed- See Chain of Custody for details

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, EPA recommends, and certain states (e.g. NY) require, that negative results be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation (1982), and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116), July 1993, R.L. Perkins and B.W. Harvey which utilizes polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2016. TRC is an American Industrial Hygiene Association (AIHA) accredited lab for PLM effective through October 1, 2016. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and the QC data related to the samples is available upon written request from the client.

Analyzed by: K. Williamson — Kathleen Williamson, Laboratory Manager

Reviewed by: Margaret Flanagan — Margaret Flanagan, Approved Signatory

Date Issued 02/15/2016

TRC LABORATORY ASBESTOS ANALYTICAL ACCREDITATIONS

NVLAP Lab Code 101424-0	AIHA-LAP,LLC #100122	CT #PH-0426	ME LA-0075, LB-0071	MA #AA000052	NY #10980	WV# LT000411	
RI #AAL-007	TX #300354	VT #AL014538	LA#05011	VA #3333 000283	AZ #A20944	HI #L-09-004	NJ #CT004	CA #2907
CO# AL-15020	PHIL# 461	PA#68-03387					

Proscience Analytical Services, Inc.

NT15614

22 Cummings Park, Woburn, MA 01801 Ph. 781-935-3212 Fax 781-932-4857

TEM Bulk Chain of Custody Record

Date: 02/15/16

PO#: **C222165** Analysis Type: Chatfield **EPA N.O.B** Qualitative

Client: TRC

Client Job#: 222165.5271.0710

Client Job Ref./Loc.: CT DOT- Rt. 15, Westport & Fairfield Bridge

Relinquished by: K. Williamson-KWilliamson@trcsolutions.com

Received by: M. Valenti 2/16/16 9:50am

Report to: E. Plimpton – EPlimpton@trcsolutions.com & SArienti@trcsolutions.com

Samplers Name: R. Belding

Turn Around Time: <12 Hour <24 Hour **<48 Hour** <3 Day 5 Day Other:

				For Lab Use Only	
Client ID #	**Lab ID#**	**Description**	**Location**	**Acceptable on Receipt**	**Comments**
4	47530	Expansion Joint	See COC		
6	47530	Caulk			
8	47530	Caulk			
10	47530	Caulk			
12	47530	Caulk			
14	47530	Caulk			

For Lab Use Only	# Spies	Total	Client #	Batch #	Results Reported	Comments

ProScience Analytical Services, Inc.

22 Cummings Park, Woburn, Massachusetts 01801
781-935-3212 ~ Fax: 781-932-4857 ~ E-Mail general@proscience.net

Laboratory Report

Client Project #: 222165.5271.0710
Client Reference: CT DOT - Rt. 15, Westport & Fairfield Bridge
PO #: C222165
Client #: 297
Client Name: TRC Environmental Corp. (CT)

Batch: NT 15614
Method: NOB
Date Received: 2/16/2016
Date Analyzed: 2/18/2016
Date of Report: 2/18/2016

LAB ID	Field ID	Description:	Color	Initial Weight	% Asbestos Types						% Other Non-asb.	% Organic	% Carb.	Total % Asbestos	Analyzed / Charged	Preped / Charged
					CHR	AMO	ACT	CRO	ANT	TRE						
NT119094	4	Black tar expansiopn joint		.4379	3.84	.00	.00	.00	.00	.00	7.15	84.15	4.86	3.84	Yes	No
NT119095	6	Gray pliable caulk		.7720	.00	.00	.00	.00	.00	.00	10.71	83.15	6.14	ND	Yes	No
NT119096	8	Gray thin brittle caulk		.1474	.00	.00	.00	.00	.00	.00	33.17	15.47	51.36	ND	Yes	No
NT119097	10	Gray thick pliable caulk		.4793	.00	.00	.00	.00	.00	.00	13.04	81.66	5.30	ND	Yes	No
NT119098	12	Dark gray hard caulk		2.1143	.00	.00	.00	.00	.50	.00	99.58	.30	.12	TR	Yes	No
NT119099	14	Tan hard caulk		.1914	.00	.00	.00	.00	.00	.00	6.79	92.37	.84	ND	Yes	No

Comments:

Key: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite TR = Trace = < 1% ND = None Detected

Mark Derosier, Analyst

158-211 & 158-207

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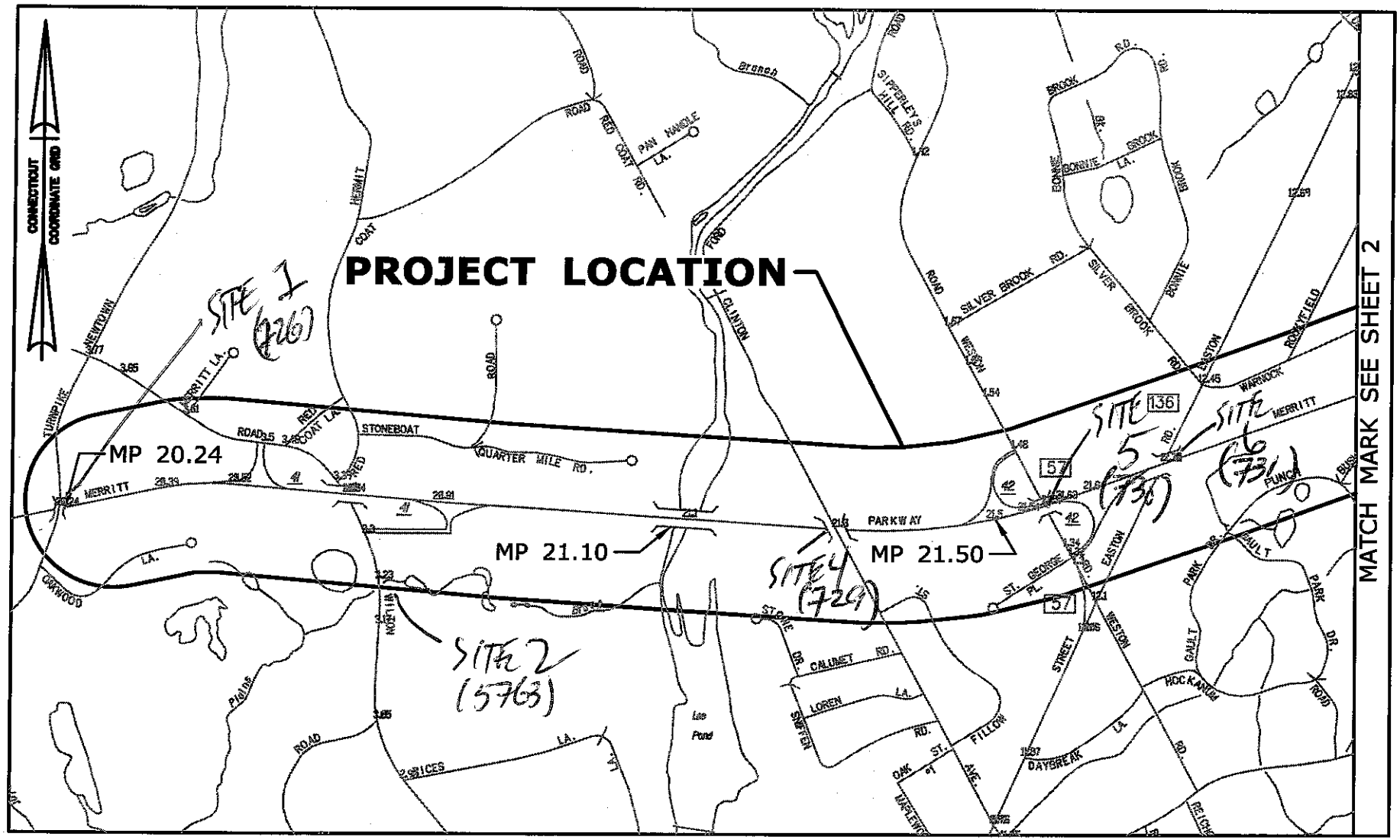
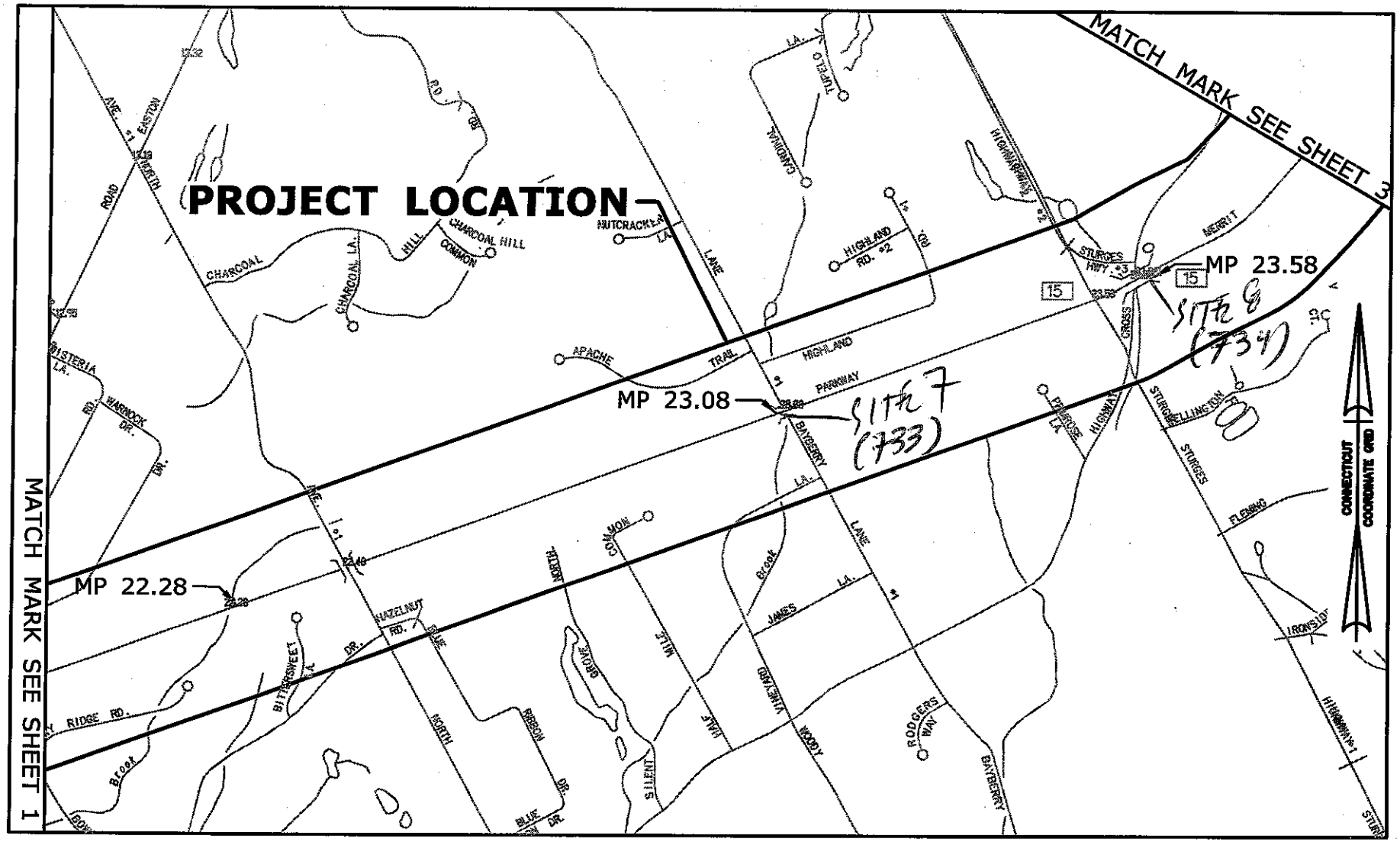
ADDENDUM NO. 2



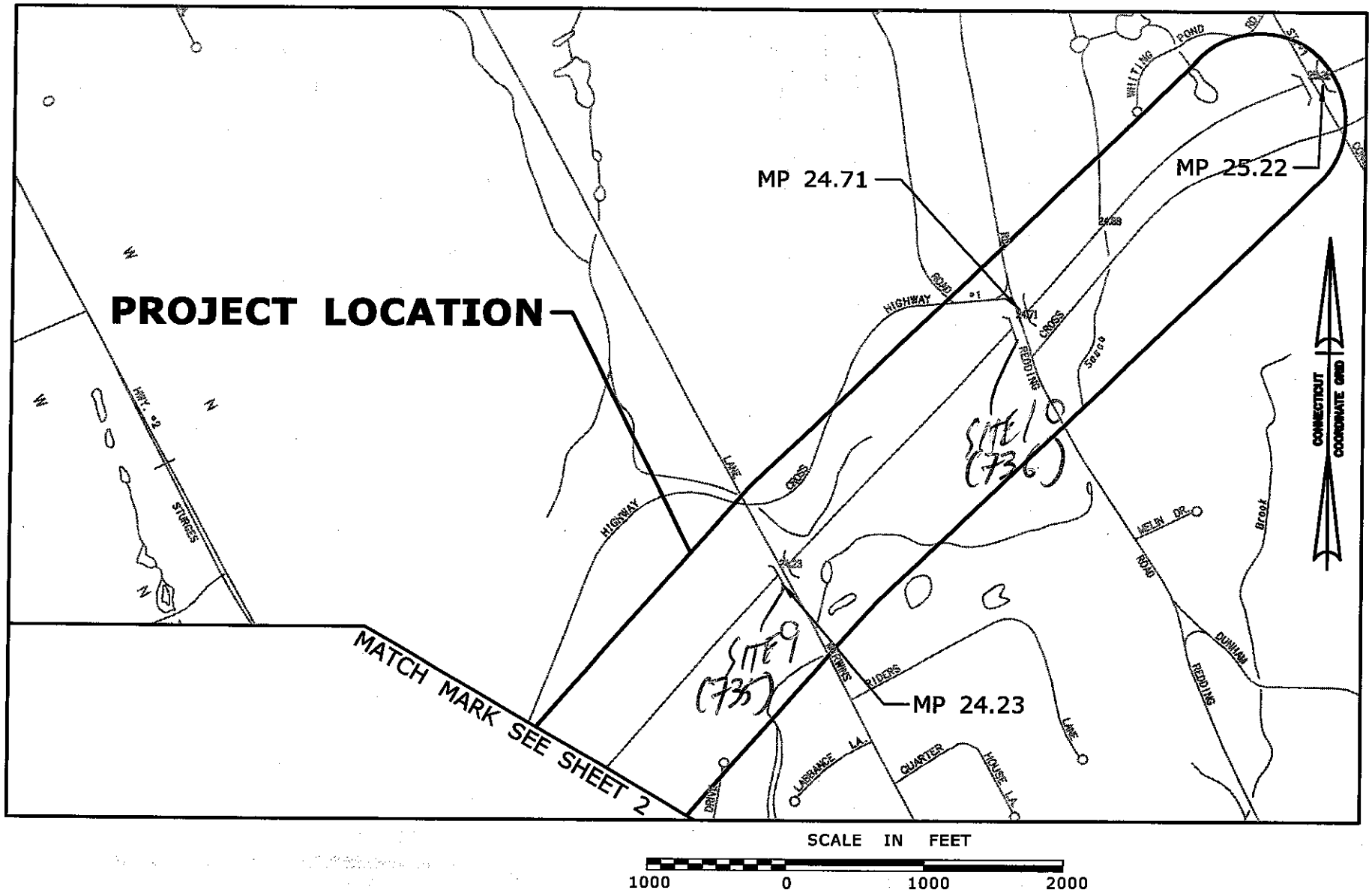
SCALE IN FEET

1000 0 1000 2000

STATE PROJECT NO.:	STATE OF CONNECTICUT	OFFICE OF	DATE:
158-211	DEPARTMENT OF TRANSPORTATION	ENGINEERING	**7/03/13**
CITY/TOWN: **WESTPORT & FAIRFIELD**	**MERRITT PARKWAY (ROUTE 15) SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS AND BRIDGE IMPROVEMENTS**		



STATE PROJECT NO.:		DATE:
158-211	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION **MERRITT PARKWAY (ROUTE 15)** **SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS AND BRIDGE IMPROVEMENTS**	OFFICE OF ENGINEERING **7/03/13**
CITY/TOWN: **WESTPORT & FAIRFIELD**		**2 OF 3**



STATE PROJECT NO.:	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING	DATE:
158-211 CITY/TOWN: **WESTPORT & FAIRFIELD**	**MERRITT PARKWAY (ROUTE 15)** **SAFETY IMPROVEMENTS, RESURFACING, ENHANCEMENTS AND BRIDGE IMPROVEMENTS**		**7/03/13** 3 OF 3

TRC
Results you can rely on

SHEET NO. _____ OF _____
PROJECT NO. _____
DATE _____
BY _____
CHK'D _____

SUBJECT Bridge # 0726
Newtown Tpk

Site 1

- Pictures taken
- All concrete structure
- No paint
- Top side ~~Tar~~ Exp Joint T-1 25 sq Ft
- walls side crack C-1 50 sq Ft

* - walls have unpainted wood slots over concrete (Pictures)

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE 2/9/16

BY SA / RB

CHK'D _____

SUBJECT Bridge # 5763 Clinton

Site 2

- Painted concrete
- TCCP / Tetra Pak collected
- Caulk seam on Jersey barriers under Bridge C-1 100s ft
- All concrete bridge
- PVC water pipes

- No caulks or tars top side.

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE _____

BY _____

CHK'D _____

TRC
Results you can rely on

SUBJECT Bridge #0729

☆ No safe way to sample I beams ☆

S.t 4

- painted concrete
- painted Railings
- painted I-beams

☆ Poison Ivy ☆

- Abutment overlook CRACK C1 thin brittle grey 200 Ln Ft
- Abutment base/Exp JOINT CRACK C2 thick rubbery grey 1000 Ln Ft
  located sides and base of Bridge Filling cracks, JUNCTION point and hole.

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE _____

BY _____

CHK'D _____

TRC
Results you can rely on

SUBJECT Bridge # 730

Site 5

- All concrete Bridge
- Painted concrete over graffiti Tech/Total collected
- No cracks on Tans
-
- Haz-waste
- Time near base of Abutment

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE 2/10/16

BY RE tMS

CHK'D _____

SUBJECT Bridge 0731

Side 6

* Metal I-Beams are painted, under roadway of Merritt.

↳ NO safe area to set up ladder for Niton Shots *

- Concrete structure w/ metal deck supports

↳ No caulking observed

- Ivy growing on all 4 sloped walls

- PVC pipe for drainage

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE _____

BY RB + MS

CHK'D _____

SUBJECT Bridge 733

- Various patches of paint on inside of Arch, appears to cover graffiti
- No caulk found in seams
  - Below or on Merritt roadway surface

Site 7

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE _____

BY RB + MS

CHK'D _____

TRC
Results you can rely on

SUBJECT Bridge 734

- Concrete structure
- Paint used to presumably cover graffiti
- No caulking observed
- Ivy on all 4 sloped walls
- Power lines run through NB tunnel

5.6 8

SHEET NO. _____ OF _____

PROJECT NO. _____

DATE _____

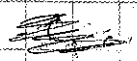
BY RB + MS

CHK'D _____

TRC Results you can rely on

SUBJECT Bridge 735

- Metal railings on Merwins Lane road (Painted)



5.69

- Cj around each base of Metal Railing
  - ↳ 2 LF per base x 24 bases = ~48-50 LF
- Cg on concrete parapet wall over Merritt (Both sides)
  - ↳ ~20 LF
- No Caulkings observed under Merwins Road decking

TRC
Results you can rely on

SUBJECT Bridge 736

SHEET NO. _____ OF _____
PROJECT NO. _____
DATE _____
BY RB + MS
CHK'D _____

-Concrete Structure

Site

-No Caulking observed

* No safe area to inspect under Redding Rd *
↳ Traffic from Merritt Pkwy is too dangerous

- No paint on Redding Rd

- Ivy growing on all 4 sloped sides

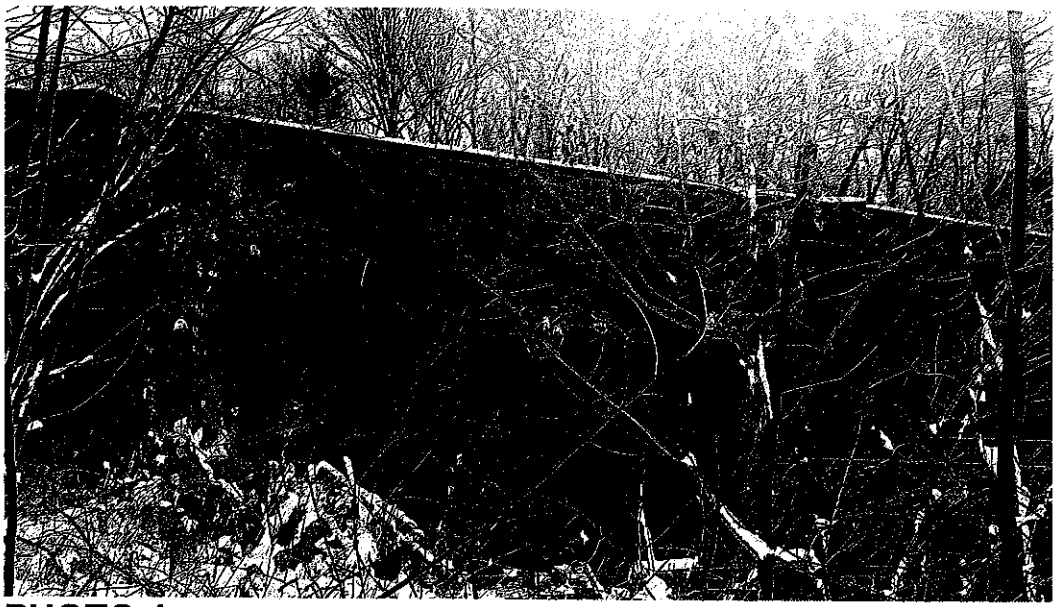


PHOTO 1
Site No. 1 – Bridge No. 00726, Westport

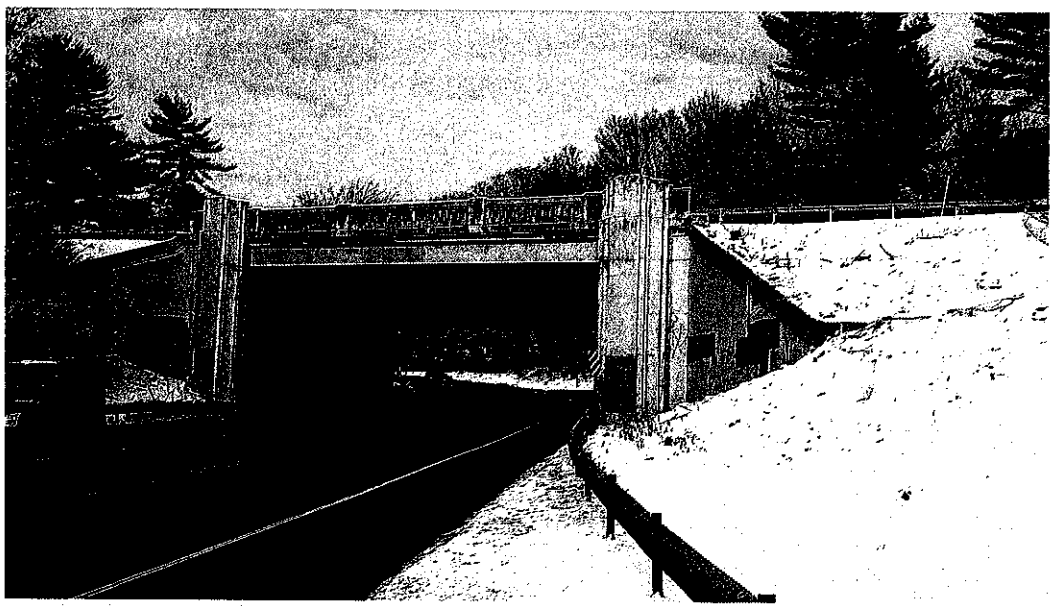


PHOTO 2
Site No. 2 – Bridge No. 05763, Westport

PHOTO 3
Site No. 4 – Bridge No. 00729, Westport

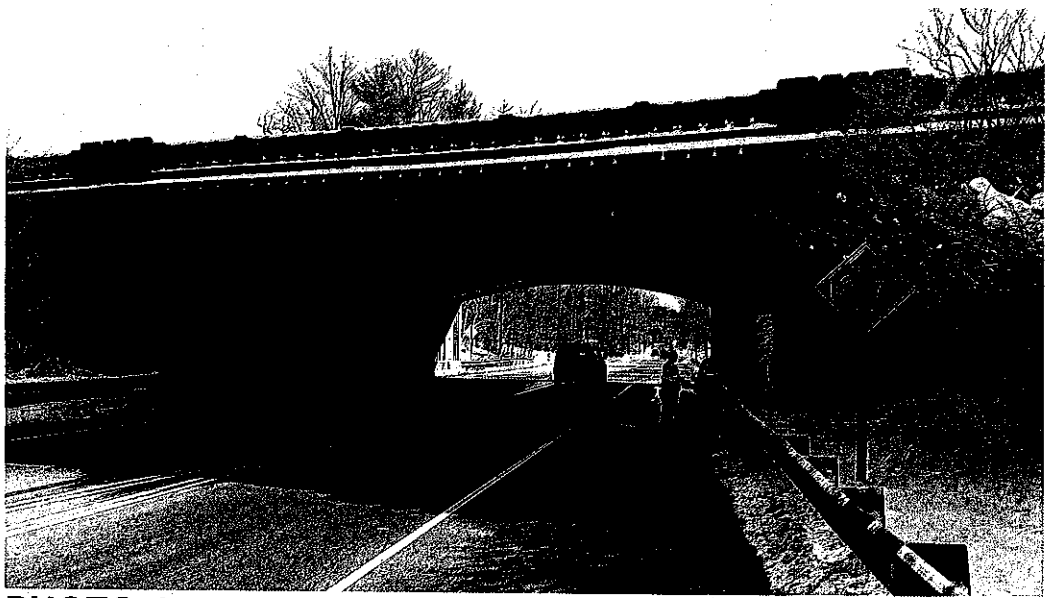


PHOTO 4
Site No. 5 – Bridge No. 00730, Westport

PHOTO 5
Site No. 6 – Bridge No. 00731 (NB), Westport

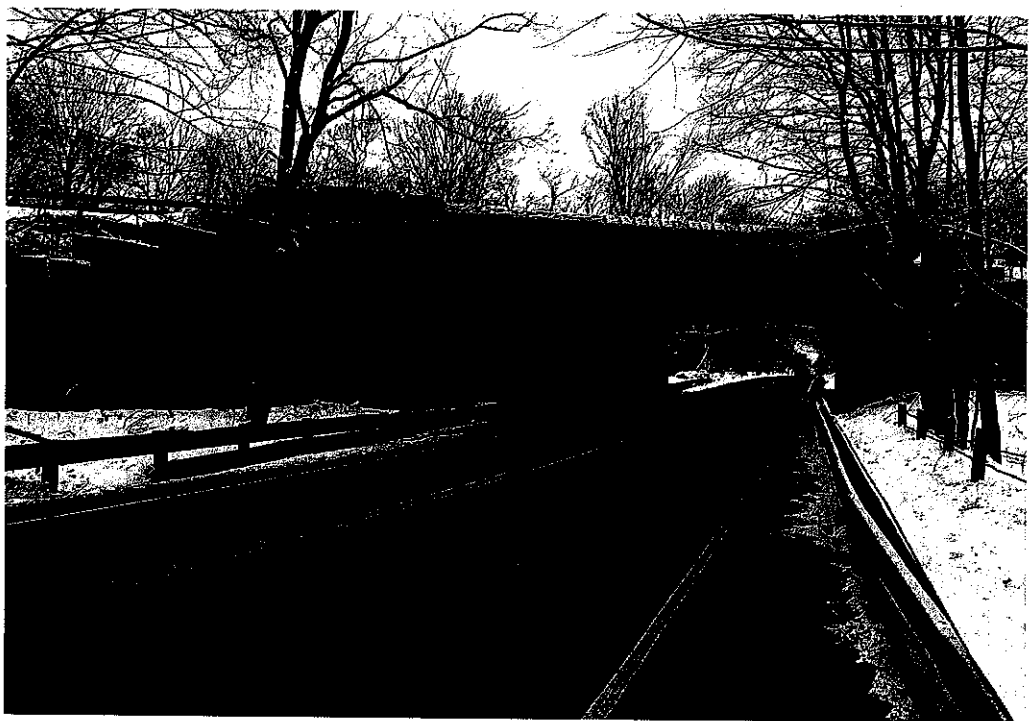


PHOTO 6
Site No. 6 – Bridge No. 00731 (SB), Westport

PHOTO 7
Site No. 7 – Bridge No. 00733 (NB), Westport

PHOTO 8
Site No. 7 – Bridge No. 00733 (NB), Westport

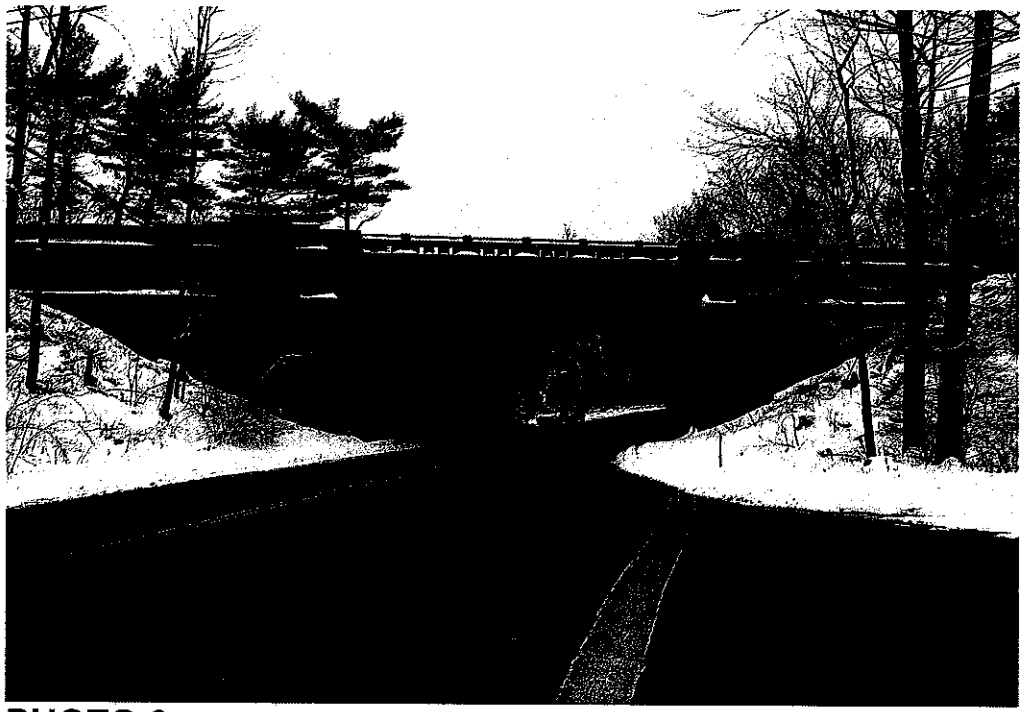


PHOTO 9
Site No. 8 – Bridge No. 00734 (NB), Fairfield

PHOTO 10
Site No. 8 – Bridge No. 00734 (SB), Fairfield

PHOTO 11
Site No. 9 – Bridge No. 00735, Fairfield

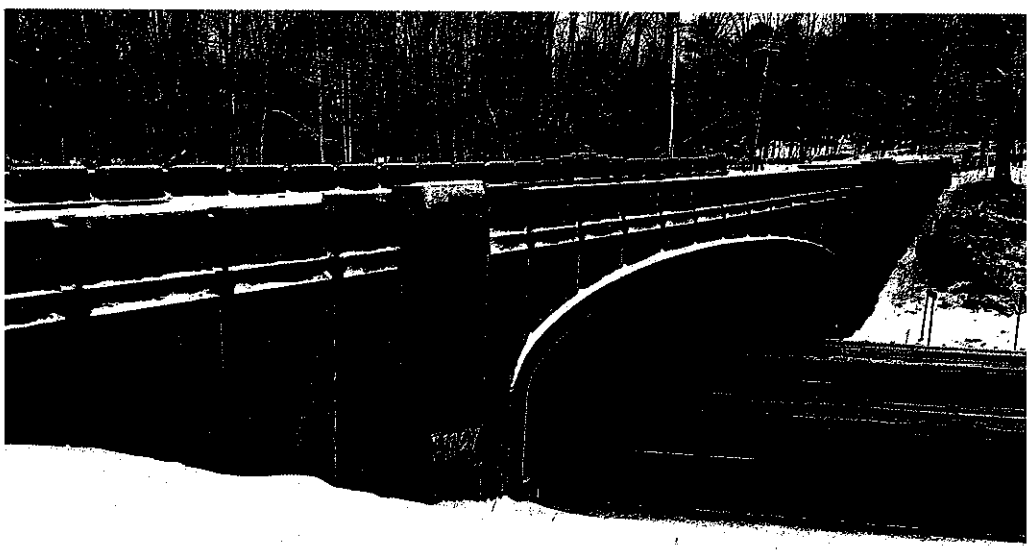


PHOTO 12
Site No. 10 – Bridge No. 00736, Fairfield